U.S. DEPARTMENT OF COMMERCE
National Technical Information Service

PB-296 863

The Legislative and Institutional Framework to Control Pollution from Land Use Activities in the United States Great Lakes Basin. Summary Report

Great Lakes Basin Commission, Ann Arbor, MI

Prepared for

International Joint Commission-United States and Canada, Windsor (Ontario)

Apr 78

PB 296863

REFERENCE GROUP
S POLLUTION
E ACTIVITIES

INTERNATIONAL JOINT COMMISSION

THE LEGISLATIVE AND INSTITUTIONAL FRAMEWORK TO CONTROL POLLUTION FROM LAND USE ACTIVITIES IN THE UNITED STATES GREAT LAKES BASIN

SUMMARY REPORT

REPRODUCED BY
NATIONAL TECHNICAL
INFORMATION SERVICE
U. S. DEPARTMENT OF COMMERCE
SPRINGFIELD, VA. 22161

50272-101

REPORT DOCUMENTATION PAGE	1. REPORT NO.	2.	3. Recipient's Accession No. PB296863
4. Title and Subtitle: The legislative and institutional framework to control pollution from land use activities in the U.S. Great Lakes basin Summary Report			5. Report Date: April, 1978 6.
7. Author(s): Eric Schweitzer, Wm. G. Steward, Barbara Roth			8. Performing Organization Rept. No.
9. Performing Organization Name and Address: Litton and Company, Inc. Washington, d.C.			10. Project/Task/Work Unit No. 11. Contract(C) or Grant(G) No. (C) US EPA 68-01-1598 (G)
12. Sponsoring Organization Name and Address: Pollution from Land Use Activities Reference Group-IJC 100 Ouellette Avenue, 8th floor Windsor, ON N9A 6T3			13. Type of Report & Period Covered: Final technical 14.

15. Supplementary Notes

Funded by US EPA

16. Abstract (Limit: 200 words)

The document presents a summary description of the existing legislation/regulation framework available at various levels of governments in the United States Great Lakes Basin for controlling the nonpoint discharges of sediments, nutrients, pesticides, and chemicals associated with urban areas, transportation corridors, extractive operations, agriculture, recreational areas, forested areas, liquid, solid and deepwell disposal areas, shoreline landfilling activities, and lakeshore and riverbank erosion. Brief summarized information in this volume is detailed in a three volume set under the same title.

17. Document Analysis a. Descriptors

nonpoint pollution, legislation, regulation, land use, government institutions, enforcement, Great Lakes (United States)

b. Identifiers/Open-Ended Terms

PLUARG/IJC

c. COSATI Field/Group

18. Availability Statement	19. Security Class (This Report)	21. No. of Pages
Unlimited through NTIS		69
	20. Security Class (This Page)	22. Price PCA04/MF-A01

(See ANSI-Z39.18) See Instructions on Reverse

OPTIONAL FORM 272 (4-77)
(Formerly NTIS-35)
Department of Commerce

THE LEGISLATIVE AND INSTUTIONAL FRAMEWORK TO CONTROL POLLUTION FROM LAND USE ACTIVITIES IN THE UNITED STATES GREAT LAKES BASIN

SUMMARY REPORT

PREPARED BY
ERIC SCHWEITZER
WILLIAM G. STEWART
BARBARA ROTH

LINTON & CO., INC.
WASHINGTON, D.C.

IN SUBCONTRACT TO
GREAT LAKES BASIN COMMISSION
ANN ARBOR, MICHIGAN

To be used as a portion of the technical reports
of the International Reference Group on
GREAT LAKES POLLUTION FROM LAND USE ACTIVITIES
of the International Joint Commission --
Prepared in partial fulfillment of the
U. S. Environmental Protection Agency
Contract No. 68-01-1598
with the Great Lakes Basin Commission

April 1978

ACKNOWLEDGEMENTS

The study The Legislative and Institutional Framework to Control Pollution from Land Use Activities in the U.S. Great Lakes Basin was carried out as part of the efforts of the Pollution from Land Use Activities Reference Group (PLUARG), an organization of the International Joint Commission, established under the Canada-U.S. Great Lakes Water Quality Agreement of 1972. The study was completed by Linton & Company, Inc. under subcontract to the Great Lakes Basin with funding by the U.S. Environmental Protection Agency. Disclaimer: Findings and conclusions are those of the authors and do not necessarily reflect the views of the Reference Group, the States or Federal agencies considered in this Study, or PLUARG recommendations to the International Joint Commission.

In the preparation of this document, the Summary Report, and its ten supporting papers, Comparative Analysis, Federal, Illinois, Indiana, Michigan, Minnesota, New York, Pennsylvania, Ohio and Wisconsin, the PLUARG Task A Legislative Committee members and PLUARG State members provided valuable assistance and guidance. Mr. Eugene Jarecki of Great Lakes Basin Commission acted as the liaison and Technical Representative and provided encouragement, consultation and coordination to carry this project to fruition. The authors, Eric Schweitzer, William Stewart and Barbara Roth wish to specifically acknowledge the following:

Garth Bangay
EPS, Environment Canada

L. Robert Carter
Indiana State Board of Health

Leonard T. Crook
Great Lakes Basin Commission

Mary Garner
National Association of
Conservation Districts

Floyd Heft
Ohio Department of
Natural Resources

Leo Hetling
New York Department of
Environmental Conservation

John Konrad
Wisconsin Department of
Natural Resources

Richard Parizek
The Pennsylvania State
University

John Pegors
Minnesota Pollution Control Agency

Kim Shikaze
EPS, Environment Canada

William E. Skimin
Great Lakes Basin Commission

Merle Tellekson
U.S. Environmental Protection Agency

Ronald Waybrant
Michigan Department of
Natural Resources

Gerald Welsh
U.S. Department of Agriculture

Judy Wheeler
U.S. Environmental Protection Agency

Peter Wise
Illinois Department of Transportation

G. Martin Wood
Ontario Ministry of the
Environment

SUMMARY REPORT

CHAPTER 1 - INTRODUCTION	1
GENERAL	1
CHAPTER 2 - DEFINITIONS AND METHODOLOGY	3
GENERAL	3
LAND USE ACTIVITIES	3
CONTROL COMPONENTS	4
METHODOLOGY	5
CHAPTER 3 - OVERVIEW	7
GENERAL	7
URBAN AREAS	14
Construction Site Runoff	14
Stormwater Runoff	18
AGRICULTURE	20
Pesticides	20
Fertilizers	22
Feedlots	23
Erosion from Farm Practices	25
Drainage	28
LIQUID, SOLID AND DEEPWELL DISPOSAL	30
Solid Waste	30
Liquid Sewage Disposal	34
Private Sewage Disposal	35

TRANSPORTATION CORRIDORS	39
SHORELINE LANDFILLING	40
EXTRACTIVE OPERATIONS	43
Pits and Quarries	43
Mining	44
Brines from Oil and Gas	46
Recreation	47
LAKESHORE AND RIVERBANK EROSION	49
FORESTED AREAS	51
APPENDIX A	A-1

CHAPTER 1

INTRODUCTION

GENERAL

On April 15, 1972, the governments of Canada and the United States signed the Great Lakes Water Quality Agreement. As an integral part of this agreement, the International Joint Commission was asked to establish a Reference Group to study pollution in the Great Lakes system from agriculture, forestry, and other land uses.

Subsequently, the eighteen-member Pollution From Land Use Activities Reference Group (PLUARG) was formed with an equal number of Canadian and United States members to answer the following three questions:

(1) Are the boundary waters of the Great Lakes System being polluted by land drainage (including ground surface runoff and sediments) from agriculture, forestry, urban and industrial land development, recreational and park land development, utility and transportation systems and natural sources?

(2) If the answer to the foregoing question is in the affirmative, to what extent, by what causes, and in what localities is the pollution taking place?

(3) If the Commission should find that pollution of the character just referred to is taking place, what remedial measures would, in its judgement, be most practicable; and what would be the probable cost thereof?

In order to provide an adequate response to this last question, the Reference Group proposed a series of studies to define all those remedial measures pertinent to the solution of the problem areas identified.

This study is specifically addressed to the review and the evaluation of the existing legislative/regulatory framework available for controlling pollution from land use activities.

Canada and the United States are jointly undertaking this study. They have asked the study participants to provide information on the following tasks:

(1) Describe the content of the existing legislation/regulation framework available at each level of government (Federal, State, Special Purpose District, County and Municipal) for controlling the nonpoint discharges of sediments, nutrients, pesticides, and chemicals associated with the following land use categories:

		Priority Rating
(a)	Urban Areas	H
(b)	Transportation Corridors	M
(c)	Extractive Operations	L
(d)	Agriculture	H
(e)	Recreational Areas	L
(f)	Forested Areas	L
(g)	Liquid, Solid and Deepwell Disposal Areas	H
(h)	Shoreline Landfilling Activities	M
(i)	Lakeshore and Riverbank Erosion	L

Special reference should be made to the provisions made at the local level for controlling these potential diffuse sources of pollution.

(2) Describe the extent of the regulatory power, the commitment to develop and undertake programs and the degree of enforcement practiced at each of the specified levels of government relative to pollution from land use activities.

(3) Identify other relevant government and non-governmental programs and policies which would have an indirect bearing on the control of pollution from land use activities (i.e., sediments, nutrients, pesticides and chemicals).

(4) Identify those land use categories for which the four major pollutants (sediments, nutrients, pesticides and chemicals) are least controlled.

(5) In terms of the present jurisdictional framework(i.e., State and County), outline what possibilities for future action are available to each level of government. This would include an analysis of the constitutional limitations operating at each level of government and the potential of the existing legislative/regulatory framework for controlling non-point sources of pollution.

(6) Describe the alternatives for the future evolution of this legislative/ regulatory framework based on discussions with those persons actively working with the present framework

(7) Coordination between the Canadian contractors and the United States to develop a standardized format for comparing the legislative and regulatory approaches taken in each country.

To achieve these tasks, reports on the controls in each of the eight U.S. Great Lakes States, the Federal government, and a comparison of the controls between states within the framework of the Federal program are analyzed. This report presents a summary of each of these reports. The reader is referred to the individual reports for additional details.

CHAPTER 2

DEFINITIONS AND METHODOLOGY

GENERAL

This Chapter presents the definitions of the land use activities, the control components studied and a summary of the methodology used to compile this study. The land use activities for which centrals are studies are those that PLUARG has found may cause nonpoint pollution, they are presented in priority of concern as identified by PLUARG. The control components are compatible with those used in the legislative report for the Canadian side of the Great Lakes Basin. The methodology is divided into three steps--data collection, analysis, and evaluation and identification of future actions--for each state and the federal government. These studies become the basis for the comparison of centrals and their implementation, within the basin.

LAND USE ACTIVITIES

The Reference Group has identified the land use activities which may contribute to pollution. The activities are grouped into land use categories, where the priority of concern is identified.[1]

(1) Urban Areas -- high priority. This category has two land use activities -- site runoff from construction activities and stormwater runoff. These areas are the densely settled, built-up areas generally including those economic activities requiring the concentration of firms and the work force.

(2) Agriculture -- high priority. This category has five land use activities -- application of pesticides, application of fertilizers, feedlot operations, erosion from general farm practices, and drainage. An agricultural area is defined as those lands including structures actively committed to the production of food and fibre.

(3) Liquid, Solid and Deepwell Waste Disposal Areas -- high priority. There are three land use activities -- solid waste disposal, liquid sludge disposal and deepwell disposal. This category includes those areas used for landfills, land application of wastewater effluents and the injecting of wastes into subsurface geological formations.

(4) Transportation Corridors -- medium priority. One land use activity is considered -- runoff from construction, maintenance and use of transportation facilities. These facilities include highways and roads, airports, railroads, and utility corridors.

(5) Shoreline Landfilling Activities -- medium priority. This category has two land use activities -- land or construction excavations and dredging. There is no definition as to the distance from the water's edge in which controls should be enforced.

(6) Extractive Operations -- low priority. Three land use activities have been identified -- pits and quarries, mining, and the disposal of brines from oil and gas operations. The land areas covered are those taken by the removal and primary processing of materials from either bedrock or surface deposits.

(7) Recreation Areas -- low priority. Three land use activites have been identified -- runoff related to specific recreational activities, pesticide use and private waste disposal. This category includes public and private lands designated for recreational use.

(8) Forested Areas -- low priority. Four land use activities have been identified as sources of pollution -- timber production,woodland grazing, wildlife management and recreation.

CONTROL COMPONENTS

Research by the contractor and the Canadian contractors has identified six control components which can be applied in different combinations and to different degrees in controlling land use activities which have the potential of causing nonpoint pollution in a specific area. The components identified are:[2]

PC - Direct Pollution Control -- where a specific activity is controlled by law ore regulation through prevention or reactive means. Preventive control is where a proposed or continuing activity must receive approval from a designated agency prior to the implementation, or at periodic intervals. Reactive control is where an activity may proceed without prior approval, but is subject to control retroactivity if standards are violated. An example of a preventive control is requiring a permit for activities within a specific distance from a lake or stream. A reactive control is the fining of a governmental highway department for a fish kill that resulted from inadequate control of runoff from a road construction project.

P - Planning -- where a plan of a specific activity must be submitted prior to implementation of the activity, or where a local or State agency develops a general or specific plan, including water quality considerations, which must be followed in approving and/or implementing specific actions. Examples of this would be a site plan showing the stormwater and site runoff control measures to be employed during and after development and a comprehensive land use plan for a locality.

OS - Indirect Control -- where an act or regulation has been implemented for another major purpose, but will have an indirect impact on controlling nonpoint pollution. An example of this type of control is the review and licensing of sanitary landfill operators to insure that the landfill does not become a health hazard.

NS - Non-Statutory Control -- programs that are not in direct response to a legislative mandate, but which are designed to reduce pollution. This includes educational and citizen participation programs and technical assistance provided to various client groups. An example is the soil conservation courses of an agricultural extension agent or a State agency assisting a locality in developing a comprehensive plan.

MP - Management of Public Lands -- the guidelines adopted by a public agency on how it will maintain the lands that it owns. This also includes how the agency views its responsibilities in responding to the controls of other public agencies. An example is the practive of right-of-way maintenance practiced by a department of transportation and its response to sedimentation controls imposed by a pollution control agency.

F - Fiscal Incentives or Disincentives -- where public agencies provide monetary incentives to other public agencies or private groups or individuals to assist in the implementation of pollution abatement programs. A disincentive is where costs are imposed without assistance or an activity requires payment of an additional tax. An example of an incentive is the agricultural cost sharing program, while a disincentive is the higher taxing of an individual who does not provide adequate drainage on his land.

METHODOLOGY

The methodology used in completing this study is made up of the following components:

- Inventory of legislation based on literature review and expansion and refinement by PLUARG and Great Lakes Basin Commission officials and/or staff

- Development of a series of reports, one for each state and the federal government. These are based on the inventory and interviews of federal, state and local officials. They present the organizational and legislative frameworks and the program implementation.

- A comparison of state authority within the federal framework is developed.

- A summary of the study is prepared.

The methodology used for each report is presented with report.

FOOTNOTES -- CHAPTER 2

1. International Reference Group on Great Lakes Pollution from Land Use Activities, Detailed Study Plan Supplement, August 1976, International Joint Commission, p.8. (Also see "Summary Review of Pollution from Land Use Activities" for a more detailed description.)

2. Castrilli, J.F., Pollution from Land Use Activities Reference Group: Legislative Study Interim Report No. 1, Urban Areas, Canadian Environmental Law Research Foundation, May 1976. Supplemented a Task A Committee meeting June 15, 1977, Detroit, Michigan, and letter of July 26, 1977 by G. Bangay, Coordinator, Land Drainage Studies, Envrionmental Protection Service, Canada Center for Inland Waters, Burlington, Ontario.

CHAPTER 3

OVERVIEW

GENERAL

This Chapter presents a summary of the nonpoint pollution control authorities and their implementation in each of the Great Lakes states. The Federal authorities and their implementation are also presented. The summary is divided by land use activity.

The types of controls and references to summary and detailed description are presented in Table I.

TABLE I

SUMMARY: TYPE OF CONTROLS AND REFERENCES

LAND USE ACTIVITY	INSTITUTION																											
	FEDERAL			ILLINOIS			INDIANA			MICHIGAN			MINNESOTA			NEW YORK			OHIO			PENNA.			WISCONSIN		
	TYPE	PAGE		TYPE	PAGE		TYPE	PAGE		TYPE	PAGE		TYPE	PAGE		TYPE	PAGE		TYPE	PAGE		TYPE	PAGE		TYPE	PAGE	
		SUM	SR		SUM	SR		SUM	SR		SUM	SR		SUM	SR		SUM	SR		SUM	SR		SUM	SR		SUM	SR
URBAN AREAS																												
Construction Site Runoff	PC NS P	14	54				PC	15	25	PC	15	24	PC	16	24	OS PC P	16	25	P NS PC	16	29	PC	16	24	PC P NS	17	29
Stormwater Runoff		18	54	PC P	18	13	PC P	18	35	PC P	18	32	PC P	19	31	P F	19	27	PC P	19	31	PC P	19	30	PC P	19	33
AGRICULTURE																												
Pesticides	PC	20	56				PC NS	20	36	PC	21	34	PC NS	21	31	PC	21	28	PC	21	33	PC	21	31	PC	21	34
Fertilizers	NS	22	57				NS	22	37	NS	22	35	NS	22	37	NS	22	29	NS	22	36	NS	22	32	NS	23	37
Feedlot Operations	NS F	23	57				PC	23	38			37	PC	24	38	NS	24	30	NS F	24	36	NS	24	33	PC	24	36

LEGEND

PC = Direct Pollution Control
P = Planning
OS = Indirect Control
NS = Non-Statutory Control
MP = Management of Public Lands
F = Fiscal Incentives or Disincentivies
Page = page where details can be found
SUM = page reference to this summary report
SR = page reference to federal or state report

NOTE: Identification of a land use activity with a control mechanism symbol does not mean that the area is adequately controled. Reference should be made to the pages cited.

TABLE I

SUMMARY: TYPE OF CONTROLS AND REFERENCES

LAND USE ACTIVITY	INSTITUTION																																			
	FEDERAL			ILLINOIS			INDIANA			MICHIGAN			MINNESOTA			NEW YORK			OHIO			PENNA.			WISCONSIN											
	TYPE	PAGE		TYPE	PAGE		TYPE	PAGE		TYPE	PAGE		TYPE	PAGE		TYPE	PAGE		TYPE	PAGE		TYPE	PAGE		TYPE	PAGE										
		SUM	SR		SUM	SR		SUM	SR		SUM	SR		SUM	SR		SUM	SR		SUM	SR		SUM	SR		SUM	SR								
AGRICULTURE (cont.)																																				
Erosion from Farm Practices	F NS P	25	57				OS NS PC P	25	41	PC NS	26	37	OS P F	26	39	PC P NS	26	30	PC NS F	27	38	PC NS	27	33	PC	27	38									
Drainage	F	28	58				OS	29	40	OS	29	39	OS	29	40	OS	29	32	OS	29	41	PC	29	35	OS	29	40									
LIQUID, SOLID AND DEEPWELL DISPOSAL																																				
Solid Waste	PC P F	30	59				PC	30	44	PC	31	41	P PC	31	40	PC P F	31	32	PC P F	32	42	PC P F NS	32	35	PC P F NS OS	33	41									
Liquid Sewage Sludge	PC P F	34	59				PC	34	45	PC	34	42	PC	34	43		35	39	PC	35	45	PC	35	39	PC P	35	43									

LEGEND
PC = Direct Pollution Control
P = Planning
OS = Indirect Control
NS = Non-Statutory Control
MP = Management of Public Lands

F = Fiscal Incentives or Disincentivies
Page = page where details can be found
SUM = page reference to this summary report
SR = page reference to federal or state report

NOTE: Identification of a land use activity with a control mechanism symbol does not mean that the area is adequately controled. Reference should be made to the pages cited.

TABLE I

SUMMARY: TYPE OF CONTROLS AND REFERENCES

LAND USE ACTIVITY	INSTITUTION																											
	FEDERAL			ILLINOIS			INDIANA			MICHIGAN			MINNESOTA			NEW YORK			OHIO			PENNA.			WISCONSIN		
	TYPE	PAGE		TYPE	PAGE		TYPE	PAGE		TYPE	PAGE		TYPE	PAGE		TYPE	PAGE		TYPE	PAGE		TYPE	PAGE		TYPE	PAGE	
		SUM	SR		SUM	SR		SUM	SR		SUM	SR		SUM	SR		SUM	SR		SUM	SR		SUM	SR		SUM	SR
LIQUID, SOLID AND DEEPWELL DISPOSAL (cont.)																												
Private Sewage Disposal	P	36	59				PC NS P	36	46	PC P	36	44	PC NS P	37	43	PC	37	40	PC	37	46	PC P	38	40	PC P	38	44
TRANSPORTATION CORRIDORS																												
Runoff from Construction and Maintenance	PC	39	60				OS	39	48	PC OS	39	46	OS	39	45	OS	40	41	OS	40	50	PC OS	40	43	OS P	40	49
SHORELINE LAND-FILLING																												
Land and Construction Excavation	P F	40	60	PC P F	41	21	PC P	42	49	PC P	42	47		42	49	PC P	42	42		42	51	PC P	42	43	PC NS OS	43	49

LEGEND
PC = Direct Pollution Control
P = Planning
OS = Indirect Control
NS = Non-Statutory Control
MP = Management of Public Lands

F = Fiscal Incentives or Disincentivies
Page = page where details can be found
SUM = page reference to this summary report
SR = page reference to federal or state report

NOTE: Identification of a land use activity with a control mechanism symbol does not mean that the area is adequately controled. Reference should be made to the pages cited.

TABLE I

SUMMARY: TYPE OF CONTROLS AND REFERENCES

LAND USE ACTIVITY	INSTITUTION																											
	FEDERAL			ILLINOIS			INDIANA			MICHIGAN			MINNESOTA			NEW YORK			OHIO			PENNA.			WISCONSIN		
	TYPE	PAGE		TYPE	PAGE		TYPE	PAGE		TYPE	PAGE		TYPE	PAGE		TYPE	PAGE		TYPE	PAGE		TYPE	PAGE		TYPE	PAGE	
		SUM	SR		SUM	SR		SUM	SR		SUM	SR		SUM	SR		SUM	SR		SUM	SR		SUM	SR		SUM	SR
SHORELINE LAND-FILLING (cont.)																												
Dredging	PC P F	40	60	PC MP	41	20	PC	42	49	PC P	42	47	PC	42	49	PC P	42	42	PC	42	51	PC	42	43		43	49
EXTRACTIVE OPERATIONS																												
Pits and Quarries		43						43		OS	43	49				PC P	43	43			51	PC P	43	44			
Mining	NS	44	61				PC P F	44	51	PC P F	44	49	PC P MP	45	45	PC P	45	45	PC P	45	53	PC P	45	44	PC P F	45	51
Brines from Oil and Gas	PC	46	61				PC	46	50	PC NS	46	51		46	49	PC	46	44	PC F	46	52	PC MP	47	45		47	

LEGEND

PC = Direct Pollution Control
P = Planning
OS = Indirect Control
NS = Non-Statutory Control
MP = Management of Public Lands
F = Fiscal Incentives or Disincentives
Page = page where details can be found
SUM = page reference to this summary report
SR = page reference to federal or state report

NOTE: Identification of a land use activity with a control mechanism symbol does not mean that the area is adequately controled. Reference should be made to the pages cited.

TABLE I

SUMMARY: TYPE OF CONTROLS AND REFERENCES

LAND USE ACTIVITY	INSTITUTION																											
	FEDERAL			ILLINOIS			INDIANA			MICHIGAN			MINNESOTA			NEW YORK			OHIO			PENNA.			WISCONSIN		
	TYPE	PAGE		TYPE	PAGE		TYPE	PAGE		TYPE	PAGE		TYPE	PAGE		TYPE	PAGE		TYPE	PAGE		TYPE	PAGE		TYPE	PAGE	
		SUM	SR		SUM	SR		SUM	SR		SUM	SR		SUM	SR		SUM	SR		SUM	SR		SUM	SR		SUM	SR
RECREATION																												
Runoff from specific types of facilities	PF	47	61	MP	48	27	OS	48	51	OS	48	52	P OS	48	50	PC RS	48	47	P	49	54	P OS	49	46	OS	49	52
Pesticides - See presentation under AGRICULTURE																												
Private Sewage Disposal - See presentation under LIQUID, SOLID AND DEEPWELL DISPOSAL																												
LAKESHORE AND RIVER-BANKS																												
Erosion	P NS F	49	52	PC	50	27	OS	50	51	PC OS	50	53	PC	50	51	P PC	51	48		51	54		51	47	PC	51	53

LEGEND
PC = Direct Pollution Control
P = Planning
OS = Indirect Control
NS = Non-Statutory Control
MP = Management of Public Lands
F = Fiscal Incentives or Disincentivies
Page = page where details can be found
SUM = page reference to this summary report
SR = page reference to federal or state report

NOTE: Identification of a land use activity with a control mechanism symbol does not mean that the area is adequately controled. Reference should be made to the pages cited.

TABLE I

SUMMARY: TYPE OF CONTROLS AND REFERENCES

LAND USE ACTIVITY	INSTITUTION																														
	FEDERAL			ILLINOIS			INDIANA			MICHIGAN			MINNESOTA			NEW YORK			OHIO			PENNA.			WISCONSIN						
	TYPE	PAGE		TYPE	PAGE		TYPE	PAGE		TYPE	PAGE		TYPE	PAGE		TYPE	PAGE		TYPE	PAGE		TYPE	PAGE		TYPE	PAGE					
		SUM	SR		SUM	SR		SUM	SR		SUM	SR		SUM	SR		SUM	SR		SUM	SR		SUM	SR		SUM	SR				
FOREST AREAS																															
Timber Production	P	51	62				NS	52	52	PC	52	53	NS	52	56	NS P	52	49	OS F	53	56	OS NS F	53	47	MP	53	53				
Woodland Grazing																		51	OS	53	56										
Wildlife Management																		51		53					PC	53	53				
Recreation - See presentation under RECREATION																															

LEGEND
PC = Direct Pollution Control
P = Planning
OS = Indirect Control
NS = Non-Statutory Control
MP = Management of Public Lands

F = Fiscal Incentives or Disincentivies
Page = page where details can be found
SUM = page reference to this summary report
SR = page reference to federal or state report

NOTE: Identification of a land use activity with a control mechanism symbol does not mean that the area is adequately controled. Reference should be made to the pages cited.

URBAN AREAS

Construction Site Runoff

The only direct involvement with construction site runoff by the Federal government is the Water Quality Management Plan requirement of Section 208 of the 1972 Water Pollution Control Act as amended by the Clean Water Act of 1977, which is to be administered by the Environmental Protection Agency. Under the Act, designated area and statewide planning agencies are required to develop and implement controls over construction site runoff as part of their Plant. The Plan must identify management agency(ies) capable of implementing the plan and provide funding. EPA does not anticipate that federal funding for implementation will be available. Currently, the plans are in the development phase with all plans required to be completed by November 1978.

Additional federal involvement is through the U.S. Department of Agriculture, Soil Conservation Service, working through local soil conservation districts, which provides technical assistance to localities and individuals to help develop and implement conservation plans which will reduce sedimentation from construction activities.

Indirect control is provided through the Department of Housing and Ruban Development's (DHUD) 701 planning program which has provided funds for a number of years to regional planning agencies for the development of comprehensive and specific land use plans. In the development of these plans, the local planners can address sedimentation problems and develop plans that will limit or prohibit development in sensitive areas where a high degree of erosion is likely to take place.

DHUD also administers the Federal Flood Control Act, which requires the development of flood control plans, with federal and local officials, to place restrictions on development in the flood plain of any stream that receives flood control assistance. Thus, this is an indirect control on sedimentation resulting from construction site activities.

The control of sediment runoff from construction sites has traditionally been the responsibility of local governments in all Great Lakes Basin states. As a result, not all states have statewide controls* or have developed state and local cooperative arrangements to control construction site runoff. Control of any construction site activities at the local level is accomplished through ordinanced authorized through general enabling powers. This is a direct control and is usually implemented through the plan approvals required before the issuance of a building permit. All states have provided local government with zoning and subdivision control powers, which allow for environmentally-oriented reviews of construction activities. With a few exceptions, most local jurisdications do not review zoning and subdivision applications from an environmental standpoint.

---

*See Appendix A Alternative Provisions for Use With the Model State Act for Soil Erosion and Sediment Control

Soil conservation districts in all the Great Lakes Basin states provide soils information and practice standards and specifications to municipalities and developers to control sediment from construction sites. In addition, the districts assist municipalities in the development of sediment control ordinances.

Construction site runoff is not one of the land use activities analyzed for the state of Illinois.

In Indiana, there is no statewide regulatory sediment control program for construction site runoff.

Currently, a bill is before the State legislature, known as the Soil Erosion Sediment Control Act, that provides authority for the control of construction activities. This bill calls for: (1) the establishment of a comprehensive erosion and sediment control program, (2) the development of guidelines which would set forth erosion and sediment control practices, and (3) specifications which, when properly applied, will reduce soil loss. The bill requires plan approval before any land disturbing activity can commence. The existing State Soil and Water Conservation Committee and the local SWCD's would be responsible for implementing this Act.

Currently in Indiana, however, there are several authorities which provide general powers to control to County Drainage Boards, Metropolitan and Area Plan Commissions and cities, towns and countries. All of these governmental units focus their efforts on problems other than strict water quality concerns. As a result, actions taken by these agencies only have an indirect impact on pollution caused by site runoff.

At the state level, the Natural Resources Commission has the authority to regulate construction activities in floodways by virtue of its authority to issue permits for construction in floodways or on the shoreline of lakes.

In Michigan, under the Soil Erosion and Sediment Control Act, the Department of Natural Resources has the authority to control all major earth moving activities except those dealing with logging and mining. After 1979 agricultural activities, except plowing and tilling, will be subject to control. A major earth moving activity is defined as a project that disturbs one or more acres of land, or is within 500 feet of a waterway.

Local governments are responsible for developing and enforcing local soil erosion and sediment control programs and designate local enforcement agencies which must have their soil erosion control program approved by the state. Any public or private organization or individual who engages in a major earth change must obtain a permit from the local enforcement agency. A public agency may become an authorized public agency and control its own activities.

Local enforcement agencies can either approve or disapprove a plan. They are responsible for the on-site monitoring of construction activities to ensure that practices described in the approved plan are being utilized. There are 396 local enforcement agencies attempting to carry out the requirements of the Act, with the degree of enforcement varying between agencies.

In Minnesota, the state has no direct controls on construction site runoff. In cases where specific degradation of surface waters violate general water quality standards, abatement of sedimentation can be enforced by the Minnesota Pollution Control Agency.

Local jurisdictions in Minnesota can control construction site activities through powers provided in their general enabling legislation. Few localities have taken the initiative to adopt control measures.

Like Indiana and Minnesota, New York has no statewide regulatory sediment control programs for construction sites. Only in cases where specific degradation violates general water quality standards or for construction activities within 100 feet of a lake or stream can the Department of Environmental Conservation (DEC) control construction activities. Environmental impact statements are required for most construction activities.

Localities may control construction site runoff in New York through the adoption of ordinances that regulate land uses and types of structures. More specifically, local government has the authority to adopt ordinances that require erosion and sediment control plans for land disturbing activities in their subdivision control plans. Subdivision control and land development ordinances are enforced through building permits. Some municipalities have guidelines and/or ordinances directed at controlling construction activities.

In Ohio, 1971 legislation required the Division of Soil District and Water, Department of Natural Resources and two Advisory Boards, to develop an agricultural and urban sedimentation control program. To date, legislation that would authorize such a program has been developed and submitted to the Ohio General Assembly for approval. The proposed legislation will provide county commissions and municipalities with the authority to adopt rules requiring best management practices to control the rate of runoff. The Chief of the Division of Soil and Water Districts is required to develop standards and regulations and to enforce them in counties and municipalities which do not have urban sediment pollution abatement programs meeting state standards.

In Pennsylvania, the Department of Environmental Resources (DER) has the authority to control construction site runoff under the Clean Streams Act. The department is responsible for adopting and implementing regulations and a program to control erosion and sedimentation. Under current

rules, a plan must be developed for every earth moving activity. According to state officials, insufficient financial resources are allocated to DER to administer the permit program. Consequently, limited staff are assigned to this program which weakens enforcement of the program.

In Wisconsin, localities have the authority to control construction activities through their powers to enact and enforce zoning ordinances, subdivision regulations, building and sanitary codes and to adopt a development plan. Few municipalities have taken steps to pass ordinances that would control construction site runoff. The few localities which have enforcement powers lack financial resources to implement the program.

There are also two special purpose districts in Wisconsin which have the authority to control construction site erosion. They are the Inland Lake Protection Districts and Soil and Water Conservation Districts. Inland Lake Protection Districts, through the Inland Lake Protection Program, have already focused their attention on sediment runoff problems. The Districts are established to plan, adopt and carry out lake protection and rehabilitation projects. They do not have the power to enact zoning or lake use ordinances. The Districts receive technical assistance from the state to develop individual sediment control programs. The impact of their program remains to be seen.

Soil and Water Conservation Districts (SWCD) can directly control construction site runoff through land use regulations. Only one of the SWCD's in Wisconsin has adopted land use controls. They can also aid in regulating runoff by assisting cities and villages in developing conservation and comprehensive plans, and providing information and technical assistance. The Washington County Project funded as a Great Lakes Demonstration grant addresses runoff problems. One of the recommendations growing out of the project will be model legislation which will create an easier process of adopting controls by Soil and Water Conservation Districts.

Wisconsin's Shoreland Zoning Program provides an instrument for the Department of Natural Resources (DNR) and local jurisdictions to control construction site activities in shoreland areas.

Under the program, DNR is responsible for preparing comprehensive plans for control of land use activities in shoreland areas and establishing guidelines for the development of local shoreland ordinances. Local jurisdictions are responsible for adopting and implementing ordinances which comply with the state guidelines. To date, the state has completed developing its comprehensive plan and guidelines. Almost all counties have adopted or are in the final stages of adopting a Shoreland Zoning Ordinance.

Stormwater Runoff

The control of stormwater runoff must be looked at from two different viewpoints: (1) nonstructural, which is an attempt to reduce the amount of runoff and/or pollutions that ultimately end up in a collection system, and (2) structural, which is the treatment of the water that is collected.

The responsibility for control of stormwater runoff is traditionally a local one with no states having control programs. Local activities to date have primarily been to construct collection facilities, originally combining stormwater with sanitary sewage but, more recently, placing emphasis on separating stormwater from sanitary sewage. Also, in recent years, some localities have required stormwater management measures in new developments through zoning and subdivision ordinances. This has led to the development of retention ponds and the use of other devices to reduce the amount of stormwater or to mitigate its pollution effect. All state and local jurisdictions are awaiting the completion of the current Water Quality Management Plans before they take any additional action.

The federal government has no direct control over urban stormwater runoff. The Water Quality Management Planning Program requires that state and local governments develop solutions to their stormwater runoff problems. These solutions must be a combination of structural and nonstructural. Federal flood control requirements also have an impact on stormwater runoff.

In Illinois, the Chicago Metropolitan Sanitary District has recommended a plan for intercepting a majority of stormwater outfalls, and significantly reducing the impact of stormwater runoff in Lake Michigan. State and federal officials are currently reviewing this plan.

In Indiana, local jurisdictions have the authority to control stormwater runoff through their zoning and subdivision authority and the local responsibility to provide public services. Certain special districts have authority to construct stormwater control facilities. At the state level, the Department of Natural Resources and the Board of Health are trying to define and develop technical solutions. Unfortunately, because of limited amount of technical knowledge and/or implementation funds, the state and local jurisdictions have been unable to develop effective control measures.

In Michigan, local jurisdictions have the authority to control stormwater runoff through their zoning powers, subdivision requirements, and their responsibility to provide public services. However, these authorities have not been effectively used as a control measure for pollution from urban stormwater runoff in Michigan.

Various state and local agencies have the authority through the Michigan Subdivision Control Act to approve the subdivision of land. This authority may be used as an indirect method to review development plans to insure proper stormwater control. The use of this Act for this purpose varies from agency to agency. In addition, the Michigan Drain Code gives the County Drain Commission authority to control stormwater runoff.

In Minnesota, stormwater runoff is regulated by municipalities, towns, and/or regional sanitary sewer districts through their responsibility to build and operate public works which include drains and ditches. Few localities have attempted to address stormwater runoff.

In New York, the State has authority to issue permits for combined sewers. Funding for construction of combined sewer systems is not available at the State level unless it can be shown that combined sewers are more cost-effective than a separate system. Due to the small amount of information available to the Contractor, the degree to which local jurisdictions are involved in stormwater control in New York cannot be determined. Local jurisdictions have the authority to control and effect stormwater runoff through their zoning powers, and subdivision requirements, and their responsibility to provide public services.

In Ohio, municipalities and sewer districts have the authority to control stormwater runoff. In certain municipalities a separate department is established to manage and supervise all public works. Each municipality is responsible for planning and constructing sanitary and storm sewer systems.

Local jurisdictions have zoning powers and subdivision requirements which provide them with the authority to control stormwater runoff. As in all Great Lakes states, technical solutions to stormwater runoff problems are in the process of being developed. Until the technical solutions become available, existing authorities cannot be applied specifically to resolve this problem.

Stormwater runoff is being given top priority in two Water Quality Management Plans in Pennsylvania. Local jurisdictions have the authority to control stormwater runoff through their general zoning powers, subdivision regulations, and through their responsibility to provide basic public services.

In Wisconsin, stormwater is controlled by one of a number of special districts: metropolitan sewage districts (MSD); joint sewarage commissions (JSC); and town sanitary districts. Each district has the authority to plan, construct and operate stormwater sewers. MSDs and JSCs may also treat stormwater.

AGRICULTURE

Pesticides

Federal acts which have an impact on the use of pesticides from a water quality standpoint are the Federal Environmental Pesticide Control Act of 1972, controlling the use of pesticides, and the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), controlling the manufacture, sale, and transportation of pesticides.

Under FIFRA, the Environmental Protection Agency (EPA) is given the authority to classify pesticides, to require the certification of all commercial and private applicators of pesticides, and to require the states to submit plans which will contain the standards for certification and the state agency responsible for administering a certification and monitoring the program. The EPA must establish standards identifying which, how and who may use pesticides, and the training necessary for the users. These standards become the basis for the development of the state programs.

The Federal Pesticide Control Act requires EPA to test and certify all pesticides that are in use and only certify for use those pesticides that have limited and short-term impact on the environment as a whole. EPA's funding to carry out this program is limited; therefore, it will be many years before all pesticides can be tested. This lack of sufficient testing should not, in the Contractor's opinion, deter from the positive aspects that are taking place at the state level in terms of the control of the application of pesticides and the user training programs.

Within the states, the control of pesticides has traditionally been a function of state government. No activity was identified at the local level in terms of controlling pesticides. The states have encountered problems in developing their programs, primarily in determining what to control and how to control it. This difficulty is the result of the lack of technical information on the impact of chemicals on water quality, and the requirement for the development of mechanisms to control activities which in the past have not been regulated.

The problems associated with pesticides were not analyzed for the state of Illinois.

In Indiana, the State Chemist is responsible for prescribing standards for certification and issuing operator licenses. This office also develops the pesticide applicators' training program. The Indiana Cooperative Extensive Service has primary responsibility for conducting the training program. There are still a substantial number of applicators to certify, but the program has been well accepted in the state. The Indiana Pesticide Review Board is responsible for developing regulations with regard to the transport, storage and disposal of any pesticide or pesticide container. There appears to be adequate staff to enforce the overall program.

The use and application of pesticides in Michigan are controlled at the State level. By law, all pesticides must be registered with the Department of Agriculture. All dealers of restricted pesticides, commercial applicators and farmers who apply pesticides must be licensed by the Department.

Pesticides are controlled in Minnesota by the Department of Agriculture, which operates a crop pest control program. Its activities include field surveys, inspection and certification of pesticides being moved interstate and intrastate, and publication and dissemination of information. The Department is also responsible for regulating the labelling, distribution, and sale of pesticides. In addition, the Department operates an applicators' licensing program for commercial applicators. The Department offers nine categories for licensing. It also has a restricted use program. The Agricultural Extension Service develops and provides the actual training material.

In New York, the Department of Environmental Conservation establishes procedures for cleaning and disposing of pesticide containers and unwanted or unused pesticides. New York is one of the few states that does this. It also determines which pesticides may be used or restricted and by whom and how they can be distributed. The Department is responsible for certifying commercial and private applicators.

The Department is anxious to certify and license all applicators and there appears to be adequate staff to accomplish this. The program is comprehensive in its approach and uses a mandatory training program to increase the skills of the individuals handling and applying pesticides.

The distribution, sale, transport, storage and application of pesticides in Ohio is regulated by the Department of Agriculture which also operates a training program to certify commercial and private applicators. The program is in its initial stages of operation with many policy decisions still being made. To keep up with the increasing number of certified applicators and applicants, it will be necessary for the Department to expand its program.

The use, distribution, storage, application and disposal of pesticides is regulated at the state level in Pennsylvania. All pesticides and pesticide dealers must be registered with the Department of Agriculture. The Department has developed and is conducting a training program for applicators, and carries out routine field inspections.

In Wisconsin, pesticide use, sale, distribution and storage are regulated through the issuance of a permit by the Department of Agriculture. These application permits are handled on a case by case basis and may set additional restrictions depending upon local circumstances.

Fertilizers

The Federal government has no controls on fertilizers. The Soil Conservation Service provides soil surveys and miscellaneous technical assistance to farmers.

The state Cooperative Extension Service arranges for soil tests and gives advice on fertilizer application throughout the Great Lakes Basin. It is the consensus of the state officials interviewed by the Contractor. that fertilizers cannot be controlled until further studies are completed on the appropriate rates and time of application. Since these rates and times vary from farm to farm and crop to crop, it is extremely difficult to write a control program. Officials feel that rising prices will make fertilizer misuse less likely in the future. A shift from "build-up" to "sustaining" level recommendations by state Extension Services should assure fertilizer runoff does not become a problem. Farmers use Extension Service recommendations as the basis for their own fertilizer application rates.

The problems associated with fertilizers were not analyzed for the state of Illinois.

The use of fertilizers in Indiana is not regulated. The Pesticide Review Board regulates the labelling of fertilizers. The Cooperative Extension Office and fertilizer dealers provide applicators with advice on application and soil tests.

Michigan has a statute controlling the manufacture, distribution, labelling, sale and advertising of fertilizers. The Department of Agriculture is responsible for administering the Act. The State Agricultural Extension Service gives farmers advice with regard to the application of fertilizers.

Minnesota's Department of Agriculture has the authority to regulate the usage of fertilizers. Unfortunately, technical information concerning the type of crop, time and usage of fertilizer by type of crop is not available. Thus, no regulations have been developed with regard to fertilizers.

There are no direct controls on fertilizers in Ohio. The Cooperative Extension Service does provide farmers with application information.

There are also no direct controls on fertilizers in Pennsylvania and New York. The Cooperative Extension Service in both states provide farmers with advice as to the time, method and amount of fertilizer that should be applied. Because the water quality impact of fertilizers in relation to time and method is unknown, no regulations have been developed to limit their effect on stream and groundwater quality.

Wisconsin does not have any direct controls on the application of fertilizers. The state is currently attempting to obtain better information on the time, rate and method of application of fertilizers to determine if there are regulatory or non-regulatory programs that might control the use of fertilizers. The Agricultural Extension Service does provide information to farmers on the application of fertilizers.

Feedlots

Under Section 401 of the Federal Water Pollution Control Act, as amended, the Environmental Protection Agency operates the National Pollution Discharge Elimination System (NPDES). This system requires permits to control discharges from animal feedlot operations if (1) the feedlot operation has 1,000 or more animal units; or (2) a feedlot operation with more than 300 animal units is discharging pollutants through a man-made conveyance, or directly into navigable waters. A feedlot operation with less than 300 animal units is not required to have a permit. These smaller operations are defined as a nonpoint source of pollution, and are subject to best management practices as requirements are developed and ultimately implemented by state and local jurisdictions through the Water Quality Management Planning Program.

The U.S. Soil Conservation Service and the Cooperative Extension Services operate technical assistance programs that incorporate rural pollution abatement techniques. Cost share assistance is available from the Agricultural Stabilization and Conservation Service under the Agricultural Conservation Program. In addition, the 1977 Clean Water Act established an agricultural cost-sharing program to provide technical and financial assistance to land owners and operators of rural land to install and maintain measures designed to reduce nonpoint source pollution.

The problems associated with feedlot operations were not analysed for the state of Illinois.

In Indiana, intensive animal feedlots are regulated by the Stream Pollution Control Board under the Indiana Confined Feeding Act, which requires a permit to operate a confined feedlot.

A small staff devotes approximately 60% of its time to the review of confined feeding control plans and the issuing of permits. Routine inspection and monitoring are not possible.

There are feedlots in Michigan which meet the size requirement for the NPDES permit. However, since they irrigate or land dispose of the pond water and have no discharge to surface waters, they are not required to obtain a permit. Feedlot operations have not been identified as a serious problem and no future action to control feedlot operations is anticipated.

In Minnesota, the Minnesota Pollution Control Agency is responsible for operating a feedlot program, where a permit is required to construct or expand a facility. Nearly 4,500 permits have been issued. Over 5,000 will be issued by the end of 1977. The program is not operating effectively due to a limited number of staff available to enforce the program.

In New York, voluntary codes of good practice have been developed for disposal of agricultural waste. Some individuals feel they are not as comprehensive as they could be.

In Ohio, guidelines developed by the Department of Agriculture, DNR and the Cooperative Extension Service provide farmers with a basis for making sound management decisions on handling animal wastes. Animal feedlot operators excluded from EPA's permit program are not required to follow the guidelines. However, it is thought the majority of them comply with the guidelines.

The Ohio Cooperative Extension Service and the Division of Soil and Water Districts provide educational services and help identify major problems and methods of solving the problems. The local Soil and Water Conservation Districts encourage livestock owners and operators to carry out their operations in such a manner that pollution is abated. Each Soil and Water District provides information, technical assistance and cost-share assistance when requested.

Ohio has proposed an Agricultural Pollution Abatement Program that would make best management practices mandatory and provide enforcement through a complaint system. This program is to be implemented through the local Soil and Water Conservation Districts with advice given by the USDA Soil Conservation Service and extension agents.

In Pennsylvania, the Department of Environmental Resources (DER) is given a general grant of authority to regulate any activity which creates a danger of pollution or has a potential for pollution. The regulation of feedlot operations falls within DER's general grant of power. DER has adopted regulations which establish how an activity that has the potential for causing pollution must operate. However, no specific regulations have been adopted to fit feedlot operations. Guidelines have been developed to integrate environmental protection and good farming practices.

In Wisconsin, the Department of Natural Resources (DNR) has the authority to develop controls regulating animal feedlot operations. Rules have been proposed which will provide farmers with a basis for sound management decisions which are compatible with water resources concerns. Adoption of controls has been delayed until studies to strengthen the technical base upon which controls can be developed and completed.

Erosion from Farm Practices

At the Federal level, the control of erosion from agricultural practices is one of the requirements that must be included in all of the Water Quality Management Plans currently being developed at the state and local level. There are two additional programs which provide assistance to farmers to help control erosion from farm activities. They are the Agricultural Cost Sharing Program of the Soil Conservation Service and the Agricultural Conservation Program of the Agricultural Stabilization and Conservation Service. The Soil Conservation Service, under the Agricultural Cost Sharing Program, may enter into contracts of not less than five years nor more than ten years with owners and operators having control of rural land for the purpose of installing and maintaining measures incorporating best management practices to control nonpoint source pollution. The SCS also has completed soil surveys in the Great Lakes Basin. The Agricultural Stabilization and Conservation Service utilizes cost sharing as a method to accomplish soil and water conservation and to prevent or abate agriculture-related pollution of water, land and air. ASCS shares the costs with farmers, ranchers, and woodland owners of installing approved soil and water conserving pollution-abatement and related wildlife-conserving practices in accordance with specified technical standards. These are practices which farmers generally would not perform to the n-eded extent with their own resources. The rate of cost-sharing averages between 50-75 percent of the cost.

While several states have different types of controls,* none of them deal with tilling and plowing, which is by far the greatest earth moving activity on a farm. The U.S. Soil Conservation Service program of providing technical assistance by developing voluntary conservation plans for individual farmers through local Soil and Water Conservation Districts if found in all states.

The problems associated with erosion from farm practices were not analyzed for the state of Illinois.

In Indiana, there are no laws specifically directed at mandatory control of sediment. The Soil and Water Conservation Act does provide Soil and Water Conservation Districts with the authority to develop programs and plans that will reduce sedimentation. SWCD's may adopt programs and plans that include engineering operations, improved cropping practices, seeding and planting of eroded lands, reforestation, soil stabilization, and runoff retardation. They also have the authority to develop comprehensive resource conservation plans and to assist land occupiers within their districts to achieve resource conservation objectives.

Conservancy Districts in Indiana also have the authority to control and prevent erosion and sedimentation. Conservancy Districts are given the opportunity to regulate water pollution, soil erosion, as well as other activities by means of the district plan. Local governmental units have the authority to pass their own sediment control ordinances. There is a bill before the State Legislature that would provide erosion and sedimen-

*See Appendix A, Alternative Provisions for Use With the Model State Act For Soil Erosion and Sediment Control

tation controls for agricultural areas as well as urban areas. The proposed legislation would authorize and direct the State Soil and Water Conservation Committee to develop and coordinate a comprehensive State erosion and sediment control program. The Committee would also be responsible for establishing maximum soil losses to be tolerated as standards for disturbing activities and critical erosion areas and set guidelines that detail erosion and sediment control practices. The bill requires everyone engaging in a land disturbing activity to submit a plan for erosion and sediment control.

In Michigan, the Sediment Control Act provides the State with the authority to control all major earth moving activities except those dealing with logging and mining. The implementation of agricultural practices, however, shall not take effect until January 1, 1979. Agricultural practices in the context of the Act include all farming operations except the plowing and tilling of land for the purpose of crop production or the harvesting of crops. The Act requires a landowner or developer to obtain a permit from an appropriate enforcement agency prior to a major earth change. An application for a permit must be accompanied by an approved soil erosion and sedimentation control plan.

A major earth moving activity is defined as a project that disturbs one or more acres of land, or is within 500 feet of a waterway. Acting through the Michigan Water Resources Commission, the Department of Natural Resources is responsible for administration of the Act.

Soil Conservation Districts have the authority to assist in developing comprehensive conservation plans, making soil erosion control equipment and material available to landowners and administering soil conservation projects. Each district receives limited funds from the state and federal government and sometimes from the Boards of County Commissioners to cover administrative costs.

In Minnesota, at the state level, agricultural activities that can cause sedimentation can be abated under the state's general water quality guidelines and regulations. Local units of government have the authority to pass their own sediment control ordinances. Soil and Water Conservation Districts have a specific grant of authority through their enabling legislation to assist in developing comprehensive plans for conservation of soil and water resources. They have no authority to enforce the plan. SWCD's, with cost share and technical assistance from the U.S. Soil Conservation Service, assist farmers in carrying out conservation plans.

In New York, there are two special purpose districts that have the authority to control erosion from farming activities: Soil and Water Conservation Districts and Regional Water Resources Planning Boards. SWCD's have a variety of planning and implementation powers, including providing assistance to landowners in preparing and reviewing erosion and sediment

control plans. Every individual with a rural holding of over 25 acres must prepare an individual conservation plan by 1980. There are no provisions in the law penalizing individuals for non-compliance.

Regional Water Resources Planning Boards are responsible for preparing a comprehensive water and related resources plan. None of these Boards receive state funds, and their activities are limited to voluntary efforts. Local units of government have the authority to pass their own sediment control ordinances.

In Ohio, the Department of Natural Resources (DNR) has proposed legislation that would strengthen the control of sediment in the state. The proposed legislation would empower the DNR to establish rules and procedures for administration and enforcement of an agricultural pollution program. The DNR will enter into cooperative agreements with Soil and Water Conservation Districts to obtain compliance with its rules and orders, provide services and implement a state cost share program.

At the local level, Soil and Water Districts assist landowners and operators in meeting established soil and water conservation standards through technical assistance and education services.

In Pennsylvania, the Department of Environmental Resources (DER) has the authority to control erosion from farming practices under the Clean Streams Act. This Act makes the DER responsible for regulating any activity which creates a danger of pollution or has a potential for pollution. The Deparment conducts information, training, administrative and liaison activities while the Soil Conservation Districts act as agents for DER providing information, assistance in developing and reviewing conservation plans and maintaining land use. Districts now seek compliance on a voluntary basis, but they can be delegated full enforcement powers.

In Wisconsin, the Department of Natural Resources is studying pollution problems related to sediment control through its nonpoint source program. They are hopeful that this program will identify the parameters which must be controlled in regard to agricultural erosion, so that controls can be developed.

There are two special districts that have potential power to control erosion from farming practices: Soil and Water Conservation Districts and those agricultural uses which fall within an Inland Lake District.

Soil and Water Conservation Districts have the authority to control land use. However, to adopt land use controls, the Districts are required to have the proposed ordinance pass a referendum and be approved by the County Board. Only one SWCD has been successful in passing an ordinance controlling land use. The District is not in the Great Lakes Basin. SWCD's are thought to be the best institutional structure to strengthen sediment control in Wisconsin in that the Board of Directors of each District is made up of elected officials who have direct access to the elected power within the county.

A special demonstration project in Washington County is developing a model ordinance intended to improve the abilities of Soil and Water Conservation Districts to pass sediment control programs. It is being based on the Shoreland and Flood Plain Zoning Program, which requires that the State provide an overall management plan and implementation guidelines for local jurisdictions. The local jurisdictions are responsible for developing and implementing control ordinances within the state requirements. If implemented, the Soil and Water Conservation Districts will still lack sufficient manpower to assist farmers in developing sediment control plans and implement them.

The Inland Lake Protection Districts are of limited use in sediment control from agricultural sources in that they normally cover areas of residential development in and around a lake and very little agricultural land is included in them. For those lands that are included, they cannot provide direct regulation of agricultural activities to control sediment, but with cost sharing and technical assistance features, they can work with farmers to develop plans to control sediment and assist in plan implementation.

It is the Contractor's evaluation that the combination of the nonpoint source pollution control program and the Washington County Project should give the State of Wisconsin a comprehensive look at its sediment control problems, and should provide draft legislation for sufficient authority to control sedimentation.

Drainage

Drainage has been the responsibility of local or special district units of government. The major objective of drainage has been to drain wet agricultural land. Sediment is suspended in the water drained, but an efficient drain will settle out the sediment. Conflicts arise when a ditch must be maintained or reconstructed to enable it to carry drainage effectively. Dredging the ditch destroys the aquatic habitat and can cause sedimentation, which impacts water quality. This is a conflict of use, aquatic habitat drainage, and sometimes the two uses are incompatible

There has been comparatively little construction of new open drains to bring new land into production in the Great Lakes Basin in the last 25 to 30 years, and virtually none in recent years. The Federal role in drainage relates primarily to technical and financial assistance for construction of field ditches and subsurface drains to make existing cropland more productive and to reduce the flood hazard.

The Federal Watershed Protection and Flood Prevention Act may have beneficial water quality effects since measures which encourage the filtering of water through the soil are required, rather than water washing off the surface and carrying sediment and sediment associated contaminants, such as phosphorus, into streams.

The Federal Water Bank Act provides financial assistance to landowners in specific wetland areas to keep wetlands in their natural state rather than draining them.

Problems associated with drainage were not analyzed for the state of Illinois.

In Indiana, County Drainage Boards under the Drainage Code have the authority to control and regulate changes within a drainage area which can alter drainage characteristics. The intent of the code was to drain wet agricultural land; thus, any effects that act to limit the deterioration of water quality are indirect. Some of the county drainage boards do not require erosion control practices such as bank seedings and erosion control structures. This is particularly true where Federal cost-share funds have been utilized to implement the erosion control practices. Drainage factors are also considered by SWCD's when preparing soil conservation plans.

Towns, cities, counties, and planning commissions all have a variety of powers which allow them to regulate land uses and types of structures built. These powers may also be used to prevent deterioration of water quality caused from drainage.

In Michigan, the DNR is responsible for all waters of the state, including waters in legal drains. Local drains are the responsibility of elected County Drainage Commissioners. Intercounty drains are operated by a Board of Commissioners made up of the County Drain Commissioners of the affected counties and chaired by the Deputy Commissioners for Intercounty Drains of the Michigan Department of Agriculture. Elected Drain Commissioners have the authority to develop plans, maintain drains, and charge the costs to benefiting owners for the maintenance and construction of the drains. The programs of the Drain Commissioners are directed toward maintenance of drains for agricultural purposes--not toward water quality. Most counties have either no inspection program or a very small one.

In Minnesota, New York and Ohio, local units of government have the responsibility and authority to regulate drainage areas through a variety of planning and zoning powers. These powers may indirectly act to prevent deterioration of water quality caused from drainage. SWCD's consider drainage factors when preparing erosion and control plans.

In Pennsylvania, local jurisdictions have a variety of powers to regulate land use and the types of drainage structures built which indirectly act to prevent deterioration of water quality cause by drainage. Soil Conservation Districts have the expertise to assist in solving drainage problems. Drainage practices are factors considered when approving a plan for development and in issuing a permit to allow earth disturbing activities.

In Wisconsin, the Department of Natural Resources is responsible for all waters in the state. Local drains are controlled by Drainage districts appointed by the County Board of Commissioners. Drainage districts do not

directly consider water quality problems, with the exception of a requirement that calls for environmental review by the Board of Directors when creating a district or approving the construction of drainage works. Through this requirement districts can be used extensively for water quality purposes. In most cases, they function as they were originally created years ago--for the drainage of agricultural wetlands.

LIQUID, SOLID, AND DEEPWELL DISPOSAL

Solid Waste

The control of solid waste disposal has been for a long time the responsibility of local agencies--primarily local health departments. In the past decade, there has been a trend whereby the state and federal governments have been participating in the control of solid waste disposal.

At the Federal level, the Resource Conservation and Recovery Act (RCRA) makes EPA responsible for providing technical and financial assistance for the development of management plans and facilities to recover energy and other resources from discarded materials, and for the safe disposal and discard of solid wastes and the management of hazardous wastes. The act requires EPA to promulgate rules establishing the standards relating to the transportation, treatment, storage and disposal of wastes. States must develop control programs within the EPA standards and receive EPA certification to operate their program. Upon certification, funding assistance is granted to the state. All of the eight states in the Great Lakes Basin are working toward complete compliance with the RCRA's requirement controls. The level of implementation varies from state to state. Water Quality Management Plans are required to address residual waste management. The Plans will identify the amounts of wastes that will be generated, methods and sites for their disposal, controls necessary for certifying new sites and the institutional structure, and resources necessary to insure proper implementation.

The problems associated with solid waste disposal were not analyzed for the state of Illinois.

Final approvals for construction and operation of landfill facilities are made by the Stream Pollution Control Board in Indiana based on standards for constructing and operating a landfill developed by the state.

Regional Water and Sewer Districts also have the authority to address solid waste problems. They are authorized to finance, construct, and operate waste collection and treatment facilities. Few, if any, districts are currently active in this area. Most districts have focused on bringing sewage treatment services to unincorporated areas and have funding limitations that reduce their ability to address solid waste problems.

Local units of government are actually responsible for operating, constructing, installing, and acquiring solid waste disposal facilities. Local health departments are responsible for inspecting each site.

In Michigan, the Department of Natural Resources has the authority to regulate the disposal of solid waste and hazardous wastes. The Department, in cooperation with county health departments, is responsible for licensing disposal sites and refuse transporting units. Licenses are issued based on DNR minimum guidelines for approval. DNR and local health departments have the responsibility for inspection of landfill site and transport operations. Current manpower at both levels of government is inadequate to implement the program.

The authority to regulate solid waste disposal in Minnesota is divided between the Minnesota Pollution Control Agency (MPCA) and local jurisdictions. MPCA is responsible for setting standards for promulgating regulations for solid waste disposal, resource recovery, source reduction, and hazardous waste management programs. Regulations are being drafted for the identification, labeling, classification, storage, collection, transportation, and disposal of hazardous wastes.

The Agency issues permits for solid waste disposal facilities, transfer stations and resource recovery facilities. It reviews only those applications for facilities consistent with the approved county solid waste management plan.

State solid waste regulations require that all permitted sanitary landfills have an approved groundwater monitoring system. About 80% of the permitted sanitary landfills in the State have operational groundwater monitoring systems providing quarterly reports on the quality of groundwater "upstream" and "downstream" from the disposal area. The remaining sites are under review. Additional facility surveillance is achieved through review of monthly operational reports.

Large quantities of hazardous wastes are being generated in Minnesota, and the handling and disposal of these dangerous materials is uncontrolled. The Agency is developing a tight control program.

Resource recovery facilities require a large volume of solid waste for proper operation and to be economically feasible. There is presently no mechanism to guarantee that a resource recovery facility will be able to obtain the necessary volume of solid waste, or to require haulers to deliver solid waste to established resource recovery facilities.

Solid waste management is the responsibility of local government in New York. The State's role has been to assist municipalities (technically and financially) as well as establish planning regulations and enforcement of solid waste activities. Unfortunately, the Department of Environmental

Conservation's resources do not allow the Department to assist communities in implementing their plans, except to a limited extent. Furthermore, there are serious manpower shortages, particularly with regard to inspection of landfill operations. It is unlikely the State will appropriate additional funds in the near future.

In Ohio, the authority to regulate the disposal of solid waste is divided between the Ohio Environmental Protection Agency, local health districts and other units of local government. OEPA is responsible for overall operation of the State's solid waste management program. The Agency promulgates regulations and standards which detail procedures for the licensing of solid waste disposal operations and other procedural regulations for local health departments. The Agency's activities include issuing licenses, making on-site inspections and developing a statewide solid waste management plan.

Counties and municipalities and towns have the authority, by resolution of their legislative bodies, to provide for the collection and disposal of garbage and refuse and make appropriate regulations for the construction, protection, maintenance and use of disposal and collection, recycling or resource recovery facilities. In general, the powers of municipalities are much broader than towns or counties due to home rul, although statutory powers are similar. Health districts are responsible for licensing and inspecting solid waste disposal sites and facilities. Of the 162 health districts in Ohio, 92 were issued licenses in 1975.

In Ohio, resource recovery activities may be practiced by general purpose governmental units, or through the creation of special authorities, by the private sector, or a combination of the public and private sectors. Ohio has established an independent State agency, the Ohio Water Development Authority (OWDA), that is self-financing and self-governing and within certain limitations may carry out resource recovery activities. Hazardous wastes are not currently controlled, but legislation is being developed that would provide for a coordinated and comprehensive program.

In Pennsylvania, the Department of Environmental Resources has both planning and regulatory authority over solid waste disposal. The Department may provide technical assistance and pay up to 50% of the required county and municipal costs of preparing solid waste plans, studies, surveys and research. County and municipal plans must meet DER rules and regulations regarding transport, storage, collection and disposal of solid wastes. DER issues permits to use land for solid waste processing or for a disposal area of a solid waste management system. A license is also required to transport and dispose of solid wastes in a mine.

DER is also responsible for administering the State's resource recovery program. It is a financial incentive program designed to assist municipalities in developing resource recovery systems. Unfortunately, shifts

in financial priorities have resulted in the necessary funds being cut back to implement this program.

In Wisconsin, the Department of Natural Resources conducts the State's solid waste management program. The Department is responsible for establishing minimum standards for the location, design, construction, operation and maintenance of solid waste disposal sites and facilities. It requires the annual licensing for the operation of solid waste facilities with emphasis on the technical adequacy of the site and facility design. In addition, the Department issues compliance orders, makes referrals, and conducts an education and training program.

Counties have the authority to establish solid waste management plans and systems alone or jointly with other local jurisdictions and are encouraged to take a regional and a planned approach to solid waste management. Cities and villages regulate landfills within their boundaries and one-and-one-half miles of the corporate limits through planning, zoning and subdivision powers of the respective general purpose governments. The Shoreland and Flood Plain Zoning Program prohibits solid waste disposal sites and facilities within areas under the program jurisdiction unless permitted by the DNR. Solid waste is also controlled through the authority provided to Metropolitan Sewage Districts (MSDs), Joint Sewerage Commissions and Town Sanitary Districts. All of these special districts have the authority to plan, construct, operate, acquire, and maintain solid waste facilities.

The Solid Waste Recycling Authority functions as a centralized body to handle development, design, financing, construction and operation of solid waste resource recovery systems. The goal of the Authority is to provide for the maximum recycling of solid waste.

DNR's Solid Waste Management Program has adequate staffing to regulate solid waste management activities in the State. The staff is an aggressive one which completes the yearly relicensing of all solid waste disposal facilities. The DNR is also increasing its education and public information programs to alleviate this problem.

The management of hazardous wastes is the largest current solid waste management problem in the State. While technology other than land disposal often exists in order to adequately process or dispose of hazardous wastes, the overall coordinated approach to regulating and managing the wastes, and hence to ensuring use of technological alternatives, does not exist. Some limited State controls currently exist, and background information is being developed as part of the nonpoint source study. However, existing laws and enforcement programs are inadequate in providing for the necessary coordinated and comprehensive program needed to deal effectively with the entire scope of the problem.

Liquid Sewage Disposal

The control of liquid sewage sludge involves the hauling of the sludge from its generation site to its ultimate disposal site and the actual disposal of the sludge itself. The Federal government, through the Water Quality Management Planning Program, requires all state and areawide agencies to develop programs to address liquid sewage sludge disposal plans. This program is still in its development phase, which is scheduled for final completion no later than November 1978. Implementation is expected to begin as soon as solutions are developed. The Federal Sewer Facilities Construction Grants Program requires that sludge management plans be developed when federal monies are being used for construction of a new or renovation of an old sewage treatment plan.

All local general purpose governments have indirect control through their zoning and subdivision authority, which allows them to approve the site for a disposal area and to place that site in an area that they find least offensive. These areas are usually not determined on environmental grounds but on public nuisance grounds, and in practice these powers are more frequently used to stall the development of disposal sites.

The problems associated with the disposal of liquid sewage sludge were not examined for the state of Illinois.

In Indiana, regulations for the disposal of liquid waste are promulgated by the Stream Pollution Control Board (SPCB). Permits for industrial land disposal sites are also issued by the SPCB. There are no specific guidances or standards formulated for land application of liquid sewage sludge. Industrial waste haulers are licensed by the state, but unfortunately, due to the lack of staff, the haulers' program is not enforced.

In Michigan, there are no controls for the disposal of sewage sludge. However, haulers of industrial liquid waste are licensed by the DNR. The Department is responsible for reviewing trip records of haulers and inspecting the hauling equipment. Deficiencies exist in the control of disposal of sewer system liquid sludge wastes. The control of transport and disposal of industrial liquid waste is adequate.

In Minnesota, the Pollution Control Agency has the authority to regulate the disposal of liquid sewage sludge. The Agency is responsible for establishing standards for acceptable sludge disposal facilities and practices, and for reviewing and approving all land application projects. To date, MPCA has promulgated guidelines to aid municipal officials, engineers, and plant operators in implementing acceptable sludge disposal facilities and practices and has provided land managers with recommendations concerning site management and usage. The guidelines also provide Agency staff with criteria to aid in the review and approval of land application projects. These guidelines limit sludge application rates to levels consistent with fertilization and soil conditioning.

In New York, haulers of industrial wastes must be registered. Haulers must report the location of pickup and disposal. New York requires that land treatment be approved by the DEC. The DEC operates on a case-by-case basis, giving consideration to field topography and soil characteristics, climatic conditions, crops to be utilized, and water balances. The State does not approve systems that allow runoff to surface waters.

The Ohio Environmental Protection Agency (OEPA) and the local health departments or districts are involved in regulating the disposal of liquid sewage sludge. The OEPA has not established a standard policy position on the accepted disposal practices but treats the approval of each sludge disposal procedure on an ad hoc basis. OEPA has the overall responsibility of reviewing and approving and issuing permits for the land application on sludge. Under recently proposed regulations, the requirement for a solid waste permit if landfills are used for sludge disposal would be reaffirmed. At the local level, health departments or districts act to enforce OEPA solid waste regulations and permits. If land application is used, the regulatory function is the responsibility of the OEPA district offices.

In Pennsylvania, the Department of Environmental Resources is required to approve and issue permits for the operation of land application techniques. A manual of guidelines has been prepared and includes standards for site selection, systems operation, and installation of equipment. Haulers of industrial wastes are not required to obtain a license in Pennsylvania. There is a need for better implementation including increased enforcement, improved and new methods of disposal, and the licensing of haulers of liquid wastes.

Current control of liquid sewage sludge in Wisconsin is only in flood plain and shoreland areas through the Shoreland and Flood Plain Zoning Program. DNR has issued a set of internal rules for sludge management. These rules require the owner of a wastewater treatment plant to develop a sludge management plan which can be amended from time to time. The plan should include information on storage, a description of sludge characteristics, and the ultimate disposal site. The DNR evaluates and approves the sludge management plans. These rules are still very new so it is difficult to determine how effective they will be and if additional controls will be needed. They should, however, provide DNR with a much more comprehsnsive information base, so that refinements or additional controls can be developed, if needed.

Private Sewage Disposal

Traditionally, the control of spetic systems has been a function of local health departments, which reviewed the plans and the installation of septic systems from the standpoint of human health. These local programs usually require that prior to the installation of a septic system, the health department would have to approve the plans for the system, including

the percolation rate of the soil in which the system was to be placed. Then, the local health department would make one or more inspections of the installation of the septic system. The Contractor was not able to identify any local areas that had the staff resources to return to existing septic systems and test them for proper operation and provide homeowners with a maintenance program for their septic systems. However, in discussions with state and local officials, all agreed that such a monitoring program of operation and maintenance is essential to the proper control of septic systems.

One of the largest single "local" water pollution problems is failing septic systems that were improperly installed or are just failing due to age. Pollution problems from septic systems often occur and are most pronounced when the population density becomes too great and the capacity of the soils to treat septic effluents is exceeded.

The Federal Water Quality Management Planning Program requires that management plans include the control of private sewage disposal systems; therefore, upon the completion of these plans, most states will have implementable management programs to control private sewage disposal systems.

Several other acts authorize federal agencies to administer grants for comprehensive planning activities which impact private sewage disposal by identifying either (1) where collector systems should be built, or (2) where it would be acceptable to install private disposal systems in terms of soil and water table.

The study did not examine problems with regard to private sewage disposal in the state of Illinois.

The regulation of private sewage disposal systems or septic tank systems in Indiana is a power and responsibility of the local county health boards. They have the power to adopt regulations and ordinances which control private sewage disposal systems. The State provides technical assistance and has developed septic systems.

The County Health Departments are generally poorly funded and have minimum staff resources available to administer a thorough and rigorous regulatory program for septic tank systems. The operating budgets for county health departments are controlled by the County Council. The Sanitarian's job is appointive; thus, the administration of the regulatory program is subject to political influence or pressures. And while professional sanitarians are licensed according to a set of standards, it is not required that the position of "County Sanitarian" be filled by a professional sanitarian.

In Michigan, the Department of Public Health has developed a model sanitary code for local health departments. DNR is responsible for

licensing all persons and vehicles engaged in the cleaning and servicing of septic tanks.

Local health departments regulate the construction and maintenance of septic tanks through their authority to adopt sanitary codes. The strictness of these codes varies from county to county. In general, it appears that a local health department provides a reasonable level of review prior to the construction of a septic tank. Post-construction surveillance, however, is not widely performed. Although these deficiencies are largely attributed to the financial constraints of local health departments, there are no existing guidelines which require local health departments to fulfill this ongoing monitoring function.

In Minnesota, the Department of Health, the Pollution Control Agency and local jurisdictions are involved in regulating private sewage disposal. The Department of Health has set standards for septic tank systems, which require all new and existing systems must be brought up to these standards by July 1, 1977 in unincorporated areas and by 1980 in incorporated areas. These requirements have been very successful in controlling the location, construction, and use of individual systems on new lots and developments. There have been problems, however, in the older, existing lots which may have an inadequate septic tank or improper soil.

The MPCA staff is working with a 46 member Citizens Advisory Committee in the development of statewide, technical standards governing location, construction and use of individual systems. These Agency standards are intended to provide alternative systems which can be used in areas where the traditional septic tank system will not function properly. The application of these standards to the estimated 10,000 septic tank systems installed in Minnesota each year will be an important area of involvement for the MPCA the next several years.

Localities have the authority to adopt codes or ordinances which regulate private sewage disposal systems. A wide range of county programs and ordinances attempt to control the location of individual sewage treatment systems. A lack of uniform enforcement has resulted. Some counties have very good programs with excellent administration; some have no ordinance and/or no trained personnel.

In New York, local units of government have authority and have passed ordinances controlling the installation of septic systems. The DEC controls the haulers of septic sludges through a statewide permit program. The implementation of both of these programs is weak because of understaffing.

In Ohio, the Department of Health jointly with local health departments or districts has the authority to regulate private sewage disposal systems. The Department promulgates regulations which establish minimum standards governing design, construction, location, reconstruction, operation and installation of septic disposal systems. It also details minimum standards governing the issuance of permits for the installers and clearers of septic disposal systems.

Local health departments or districts are responsible for enforcing the State standards for septic disposal and may enact more stringent provisions when, in their estimation, conditions in their district warrant them. The principle of home rule is very strong in Ohio; thus, many districts have optioned for local variations in their code. Implementation is a problem with local health departments which are understaffed.

In Pennsylvania, the Department of Environmental Resources develops rules and regulations for certifying sewage enforcement officers. The Sewage Enforcement Officer (SEO) is the only person who can issue a permit to install an on-lot sewage disposal system. The officer is certified by the DER and designated by municipal ordinances as the SEO for the minicipality or local agency having jurisdiction in the area.

Each municipality is required to submit to DER for approval an officially adopted plan for sewage systems within its jurisdiction. Each plan must cover existing sewage systems in detail, proposed sewage systems (within the next 10 years), and where no systems exist or are proposed, the plan must include a land classification system to prevent on-lot sewage disposal systems from being installed where soils are not suitable. Provisions are made for grants to help with such planning. When the Plan is approved by the Department of Environmental Resources, the local agency has the responsibility for administering its program, including accepting applications for sewage system permits, inspecting proposed sites, reviewing proposed plans and issuing or denying permits.

The authority to regulate private wastewater disposal in Wisconsin is divided between the Department of Natural Resources, the Department of Health and Social Services, and local jurisdictions.

The Department of Health and Social Services is responsible for establishing and enforcing reasonable uniform Statewide standards, including the sizing, siting, and design criteria and the submittal of soil test plans and specifications.

The Department of Health and Social Services must review and approve all unsewered subdivision plans for compliance with the Septic System Code. This review looks at general soil and site information in terms of suitability of the soils to handle septic systems.

In addition, a State septic tank permit must be obtained before buying or installing a septic tank. The Department of Natural Resources may prohibit the use of septic tanks in any area of the State where it finds that it would impair water quality. If prohibited, the Department must recommend alternate methods of waste disposal. The State septic tank permit serves only as a bookkeeping function, and must be issued upon the receipt of a permit application and a nominal fee.

TRANSPORTATION CORRIDORS

The control of runoff from transportation facilities varies widely. Most of it is oriented toward highways and airports, with the only requirements on other types of facilities being for the preparation of an environmental impact statements.

All states are required to implement programs responsive to the Federal Highway Administration's Erosion Control Program. The program only applies to state and county roads which receive federal funding. In addition to this program, only Pennsylvania and Michigan have controls on all roads regardless of funding source. All these programs deal primarily with the construction of roads and not with their operation and maintenance, although Minnesota has controls over the use of salts. This is an area where the Water Quality Management Planning Program requires the development of management programs to insure the proper development of controls.

The FAA has requirements for erosion control in the construction and improvements to airports. All states which receive FAA funding are required to adhere to these FAA controls.

The study did not examine problems related to transportation corridors for Illinois.

In Indiana, the State Highway Commission is responsible for ensuring all State and county roads which receive federal funding provide for control of runoff and erosion. Enforcement is by resident inspectors employed by the State. Public use airports receiving FAA funding must also comply with runoff controls.

In Michigan, the Department of Transportation ensures compliance with FHWA's erosion control specifications.

Under the Soil Erosion and Sediment Control Act, all earth moving activities are regulated in the state. This includes the construction of roads and other transportation facilities. The Michigan Department of Natural Resources is responsible for administration of the Act, which requires erosion controls during construction, and early mulching and planting of cuts and ditches, which will reduce subsequent erosion. While it is not possible to tell how beneficial these measures will be, it is generally anticipated that at transportation construction sites erosion will become a less important source of sediments in the future.

In Minnesota, the Department of Transportation ensures compliance with FWHA specifications. There is no working relationship with MPCA and Minnesota DOT to control runoff from highways. Salting is controlled by a statute which applies to all localities and limits the use of salt on curves, hills and bridges.

In New York, there is a Memorandum of Understanding Between the New York State Department of Transportation and the New York Department of Environmental Conservation that establishes a base of authority from which to control runoff from transportation corridors. The agreement stipulates that there be continuous cooperation between the State DOT and the State DEC throughout the development, evaluation, and implementation of programs and projects which are promulgated under the legislative authority of the respective agencies. Each agency furnishes the other with copies of its long-range plans for the improvement of facilities and services under its jurisdiction and copies of its current capital program and scheduled maintenance program.

The Ohio Department of Transportation oversees those aspects of highway construction which impact water quality, principally sediment control. Guidelines for sediment control are promulgated in Ohio DOT. These guidelines must be followed in construction of any local highway where federal funds are used. All airport facilities using federal funds must provide for the control of runoff and erosion as set by FAA standards.

In Pennsylvania, the Department of Transportation is responsible for developing programs assuring adequate, safe and efficient transportation. With regard to erosion, the Department is responsible for ensuring that all state and county roads which receive federal funding provide for control of runoff and erosion as specified by FHWA regulations. Public use airports receiving FAA funding are also subject to runoff controls.

DER is another agency, through its general grant of authority, which has the ability to regulate runoff. Any developer who wishes to construct an airport is required to obtain a permit where his earth moving activities affect 25 acres or more.

In Wisconsin, FHWA specifications are enforced by the Wisconsin Department of Transportation through their contracting procedures for highway construction. The state has no regulations which specifically focus on control of runoff from transportation corridors.

SHORELINE LANDFILLING

The land use activities identified as possible sources of pollution in shoreline landfilling are construction along the shoreline and dredging. The Federal government has two acts which require state and local governments to control pollution from the land use activities on the shoreline. Under the Coastal Zone Management Act, states, in cooperation with local governments, develop management programs including regulations to insure that development in the coastal zone of each state is completed in an environmentally sound manner, and that such development does not create erosion problems that are detrimental to the activities of man. The Water Quality Management Planning Program requires local jurisdictions and states to develop management plans for the control of pollution in all areas, including the shoreline area.

The second section applicable to shoreline actitivities is Section 404 of the 1972 Federal Water Pollution Control Act. It authorizes the Corps of Engineers (COE) to issue permits to all public and private agencies wishing to conduct dredging and filling activities in any navigable water. States who desire to administer their own individual and general permit program may do so if approved by EPA. Federal guidelines that list requirements for application and approval have not been published.

Under the operating program, COE is required to provide for the consideration of all public concerns environmental, social and economic--in the decision-making process--to either issue or deny permits.

Along with the discharge of material which has been dredged or excavated from any waters of the United States, the following types of activities are also regulated by this program: site development fills for recreational, industrial, commercial, residential, and other uses; causeways or road fills; dams and dikes; artificial islands; property protection and/or reclamation devices; beach nourishment; levees; sanitary landfills, and backfilll required for the placement of structures such as sewage treatment facilities.

All the states in the U.S. Great Lakes Basin are in the process of developing their Coastal Zone Management programs, and Water Quality Management Plans. These plans will be complete in 1978. The development of these plans under federal regulation will insure a comprehensive approach to the control of pollution from shoreline landfilling activities.

All states currently have state laws which require that dredging receive a state permit; and, in the case of Wisconsin and New York, an environmental impact statement is also required. All states are making varying degrees of effort in coordinating their dredging permit program with that of the Corps of Engineers.

The Illinois Department of Transportation is the lead agency in regulating dredging and shoreline construction activities in the state. The Illinois Department of Conservation, the Illinois Environmental Protection Agency and the Illinois Pollution Control Board must also approve the dredging permit before it is issued. There is coordination, although not a specific written agreement, between the IDOT and the Corps of Engineers for their dual permitting program. The dredging program is working well, with adequate staffing and finances.

IDOT is also responsible for issuing permits for any construction that takes place along the shoreline or in the waters--such as bulkheads, piers, and erosion control structures. The control of construction activity along the shoreline will be strengthened by the passage of the Illinois Coastal Resources Management Act. This Act will be the basis for organizing units of government into a cohesive management system and developing a partnership of state and municipal governments. Municipal governments will be

required to develop a municipal management program that meets specific requirements developed by the state. The state will certify the municipal governments meeting those requirements. Financial assistance will be provided to municipalities for developing and maintaining their coastal management responsibilities.

In Indiana, the Natural Resources Commission has the authority to control dredging and land excavation activities. The Commission is responsible for issing a permit for any construction, excavation or alteration in a floodway. The Commission is also responsible for making a comprehensive plan of flood control areas. The Commission is empowered to cooperate with the Army Corps of Engineers with regard to any flood control works.

In Michigan, the Department of Natural Resources and local jurisdictions can regulate dredging, and filling activities. Under the authorities provided in the Shorelands Protection and Management Act, DNR is responsible for establishing standards for localities to develop shoreland zoning ordinances. The localities must adopt shoreland zoning for hazardous and sensitive areas. The ordinances must meet DNR's standards and approval.

In Minnesota, dredging and filling operations are regulated by a Corps of Engineers permit program and must comply with the substantive state, interstate and local water quality standards and effluent limitations.

In New York the Department of Environmental Conservation has the authority to control dredging and land excavation activities through the Stream Protection Law. This Law provides the DEC with the authority to regulate activities affecting the beds and banks of unprotected streams, excavations and fills in navigable waters and construction of sizeable docks. Plans to disturb a stream or navigable waters will not be approved if the proposal causes unnecessary soil erosion or water pollution.

The Freshwater Wetlands Act regulates draining and/or dredging activities within any freshwater wetland. The Act calls for an inventory of freshwater wetlands throughout the state.

When the inventory is completed, a permanent regulatory program will go into effect. In the meantime, an interim program is in effect which prohibits anyone from conducting a "regulated activity" in a wetland without obtaining an interim permit. Permits are granted only if the applicant can demonstrate that a hardship would be suffered without the permit.

In Ohio, the Department of Natural Resources has authority to control dredging and land excavation activities through its operation of a permit program for dredge-and-fill projects. The Department is the liaison contact agency within Ohio for all Corps of Engineer projects.

In Pennsylvania, the Department of Environmental Resources has authority for issuing permits to carry out dredging construction or excavation activities along the shoreline.

The Water Obstruction Act also provides DER with a regulatory tool to control shoreland filling activities. The Act prohibits construction of any water obstruction without first obtaining a permit from DER.

In Wisconsin, land disturbing activities along the shoreline are controlled at the state and local levels. The State has control through the Shoreland and Flood Plain Zoning Program and the Public Inland Lake Protection and Rehabilitation Program. The programs allow the state to control shoreline activities through the development of standards, the provision of technical and financial assistance, and the assurance that the responsible local units of government will enforce the programs. The local units of government which implement the Shoreland and Inland Lake Programs have direct planning and indirect controls over activities along the shoreline.

The Corps of Engineers and DNR are responsible for approving and issuing permits to conduct any dredging activities. DNR requires an environmental impact statement be written and approved before it will issue a dredging permit. The control of construction, land excavation, and dredging activities on the shoreline is one of the State of Wisconsin's stronger programs.

EXTRACTIVE OPERATIONS

Pits and Quarries

There are no direct Federal controls over pit and quarry operations. The control of these activities has traditionally been a function of the states, with a minimal local input. Under the Water Pollution Control Act Amendment of 1972, as amended by the Clean Water Act of 1977, designated state and local agencies are responsible for development of best management practices for extractive operations.

The U.S. Geological Survey also provides topographic and geological information to local governments as it relates to mining operations.

Problems with regard to pits and quarries were not examined for Illinois.

In Indiana, pollution problems from sand and gravel quarry operations are minimal. Operators are not required to obtain a permit to engage in sand and gravel and quarry operations except when those operations are located within a floodway. In those cases, permits are issued by the DNR. Discharges from sand and gravel operations, quarries, and mines must be approved by the SPCB.

Michigan's control over pits and quarries is limited to requiring operators of pits and quarries who discharge to have a NPDES permit.

In Minnesota, New York and Pennsylvania, pits and quarries are regulated by the same authorities and statutes described in the mining section.

Minimal water quality problems are generated as a result of a pit and quarry operation in Ohio. The state does not control this activity.

In Wisconsin, there are no programs to control pit and quarry operations in terms of nonpoint pollution sources. While there are some localized problems with pits and quarries, it is not a significant problem. All operators who discharge are required to have a NPDES permit.

Mining

The control of mining activities has traditionally been a function of the states with minimal local input.

Federal controls do exist over surface mining. The Surface Mine Reclamation Act of 1977 establishes a program to regulate surface mining including providing technical assistance, and a program to reclaim abandoned mines. The Water Pollution Control Act of 1972, as amended by the Clean Water Act of 1977 requires the development of best management practices for extractive operations. Implementation of the best management practices will be through a permit system to be enforced through the states.

The U.S. Geological Survey also provides topographic and geological information to local governments.

Problems associated with mining activities were not examined for the state of Illinois.

In Indiana, mining activities are regulated at the state level by the Department of Natural Resources. The Department is responsible for issuing mining permits, approving reclamation plans, and inspecting mine sites. Under the law, backfilling and grading of strip and surface mining areas is required. Additionally, peaks and ridges must be graded when adjacent to public highways and dams. Bonding is also required to insure reforestation and revegetation for sediment control. Mines are inspected after the area has been mined and restored. The bond is released at this time if the area is satisfactorily reclaimed.

In Michigan, mining activities are regulated at the state level through the Mine Reclamation Act of 1970. This Act applies to all open pit and surface mining, excluding sand and gravel, peat, and clay operations. The DNR is responsible for investigating mining activities prior to installation, establishing regulations and issuing mining permits.

Soil erosion controls are also required through the Water Resources Commission Act, which requires the Michigan Water Resources Commission to control pollution of any surface or underground waterways in the state. This includes the regulation of pollution from mining activities. Action by the Water Resources Commission is typically initiated as a result ot public complaints or the findings of special State studies.

In Minnesota, the Department of Natural Resources is responsible for the administration of the State's mine reclamation program. The 1973 Mineland Reclamation Act requires the reclamation of all currently active and any future metallic mine in the state. The Department is also responsible for promulgating regulations, issuing permits to mines and reviewing mine reclamation plans. The regulations for mine reclamation have not yet been drafted.

In New York, all surface mining is regulated by the Department of Environmental Conservation. The Department is responsible for issuing mining permits. The Department also establishes standards for mining practices, reviews reclamation plans and approves annual reclamation permits. In addition, the Department is responsible for inspection.

To assist small operators and local governments in the implementation of the Acts, the Mineral Division has made an agreement with SCS to provide technical assistance. Currently, there is no control over old abandoned mines and they do not contemplate developing controls for them. This is primarily because they cannot fund the current program and they are not sure of the best way to control the pollution sources from old mines.

In Ohio, coal mining and the reclamation of mined land are regulated by the Department of Natural Resources, Division of Reclamation, which is responsible for issuing mine permits. The permit application requires that both a plan for the mining operation and a plan for reclamation of the mined area be submitted for approval. If the application is accepted, the applicant must post a bond to assure compliance with the approved plan.

In Pennsylvania, mining activities, which include all extractive operations--coal, clay, stone, gravel and other materials--are regulated by the Department of Environmental Resources. The Department is responsible for establishing standards for covering all aspects of mining from operation to reclamation. It is also responsible for issuing permits to conduct mining activities and licensing operators and inspecting sites. Pennsylvania's strip mining laws and regulations are considered the strongest in the nation.

Until recently, there has been very little mining activity in Wisconsin. However, recent discoveries of large amounts of zinc and copper in Northern Wisconsin could lead to significant water quality problems as they are developed.

In response to the recent mineral finds, the State Legislature has enacted the Metallic Mineral Mining and Reclamation Act. The act makes the Department of Natural Resources responsible for developing standards and a comprehensive permit program covering all aspects of metallic mining from prospecting to the reclamation of the land at the conclusion of mining activities. In addition, the DNR and the Geologic and Natural History Survey are developing a comprehensive state program identifying mineral

resources and their zones of location, and financial incentives to insure the proper development of the mineral resources with the greatest degree of environmental protection and reclamation.

Brines from Oil and Gas

There are no direct Federal controls over brines from oil and gas operations. However, the Safe Drinking Water Act, Part C, requires state regulation of the underground injection of wastes. This includes brines from oil and gas production if underground sources of drinking water are threatened.

The study did not examine problems associated with brines from oil and gas operation in Illinois.

In Indiana, oil and gas wells are regulated by the Department of Natural Resources. The Department is responsible for establishing standards and issuing permits for drilling, operating and abandoning wells. Additionally, it is charged with inspecting new drilling and plugging operations, prior to abandonment, during construction of new pits and upon receipt of a complaint.

In Michigan, oil and gas wells are regulated by the Department of Natural Resources through the Conservation of Oil, Gas and Mineral Act. The Department is responsible for issuing permits for drilling of oil and gas wells. It also provides technical assistance to complete permit applications. In addition, the Department carries out on-site field inspections during installation.

There are no oil and gas operations in the state of Minnesota. Consequently, further investigation in this area is unnecessary.

The plugging of oil and gas wells requires a permit in New York. All other operations can be completed without controls except for spacing requirements between wells.

In Ohio, the Department of Natural Resources supervises and regulates all types of oil and gas field operations. The Department issues permits which are required for all wells exclusive of those drilled for fresh water. The Department also issues permits required for plugging wells.

The DNR staff inspects and supervises the drilling and plugging of all oil and gas wells, and maintains a close lisison with oil and gas operators, municipalities and the general public. The inspectors make an average of 3.8 visits to a site during a construction of a well. Thereafter, unless a complaint is filed, they visit the well annually.

Gas and oil wells in Pennsylvania are regulated by the Department of Environmental Resources. The Department is responsible for issuing permits for drilling of new wells and monitors well operations. The Department also has the authority to issue leases for exploration and development of oil and gas wells on state forest and park lands.

Wisconsin has no controls on the disposal of brines from oil and gas operations.

Recreation

Recreation related activities that have been identified as possible sources of nonpoint pollution include the use of pesticides, private sewer systems, and sedimentation runoff from specific types of recreational use. The reader is referred to the sections on pesticides and private sewer systems for a discussion of the controls on those respective activities. However, it should be noted that at the federal level, with regard to private sewage disposal, there are management practices to which the National Park Service and the National Forest Service must adhere in terms of the provision of sewage disposal the recreational areas that they operate.

The Water Quality Management Plans must develop plans which will control sedimentation runoff from specific types of recreational activities. These plans will be implemented at the local level.

The Federal government does have the authority to administer three programs which impact nonpoint source pollution generated from specific types of recreational uses. These are the Land and Water Conservation Fund Program, Resource Conservation and Development Loan Program, and the Coastal Zone Management Program. The Land and Water Conservation Act requires permits for specific types of uses in the National Park System, and grants to states for the planning, acquisition and development of outdoor recreation facilities. For the state to be eligible and to receive a grant, it must complete a comprehensive state outdoor recreation plan identifying where recreation activities will be pursued and what kind.

The Resource Conservation and Development Loan Program provides technical cost share and loan assistance to public agencies and others for public water-based recreation facility development. The program requires the development of a plan showing the development of a specific recreational area and that it meets federal planning standards for grant assurance.

The Coastal Zone Management Program, through its requirement for controls, will insure adequate control over recreational activity in the coastal zone areas of each of the states.

Recreational activities and development related to them have a very minimal impact on Illinois' lakeshore. The problems that do exist are localized in nature and generally can be corrected through increased emphasis on the operation and maintenance of recreational facilities. The implementation funding that is available through the Federal Coastal Zone Management Program will be used to improve the operation and maintenance of the existing recreation facilities.

In Indiana, there has been no detectable degradation of land and adjacent waters caused by recreational land uses. The development of regulations regarding recreational activities is not a high priority issue compared to other land use activities affecting water quality.

In Michigan, existing control of recreational activities that could impact water quality include: zoning and subdivision control powers, the Shoreland and Flood Plain Zoning Program, and the Coastal Zone Management Program. The Sediment Control Act also applies to development of recreational areas. This Act requires that the developer of the recreational area receive a permit prior to construction. There are no known requirements for the operation of a recreational area once it has been developed.

The Coastal Zone Management Program, administered by the DNR, is designed to assist local communities in controlling recreation activities so that the environment is not adversely impacted. This assistance is both technical and financial.

The Department of Natural Resources in Minnesota is responsible for regulating recreation activities in the state. The Department is responsible for preparing a detailed resource management plan for 20 major recreational units. These plans will determine the units' best recreational uses and how to best manage their resources. The Department has completed the requirement of classifying each of the units, and has prepared a summary of each decision for legislative review. Rules and regulations have been established for the administration of Natural and Recreational State parks. The Department is also responsible for administering the Wild and Scenic Rivers program. Under this program, management plans are prepared for rivers that are designated as wild and scenic.

Recreational activities in the state of New York are regulated by two agencies: the Adirondack Park Agency and the Department of Environmental Conservation.

The Adirondack Park Agency has legislative authority to carry out and regulate recreation within its boundaries. Most of the State parks and the developed areas of the APA have extensive water quality regulations controlling lodges, campgrounds and other facilities provided for the public.

The Department of Environmental Conservation (DEC), the APA and municipal governments, where appropriate, are responsible for protecting classified rivers from activities, i.e., recreational uses affecting the stream banks.

DEC and APA are required by law to make and enforce regulations necessary to manage, protect, enhance, and control land use in a corridor (up to one mile wide outside of Adirondack Park and one-half mile inside) along rivers designated in the State system.

The Stream Protection Law also provides authority to classify streams in terms of recreational uses. This Act requires that a permit be obtained for the crossing or use of the stream. Currently, there is no monitoring or enforcement of the activities of the permits that are issued.

In Ohio, the control of recreational activities falls under the more generalized controls given to the local units of government. These are the zoning powers of the general purpose governments, the building inspection programs, and the Soil and Water Conservation District's programs. Currently, there are no recreation land use activities creating major environmental problems in the state.

In Pennsylvania, there has been no significant degradation of land and adjacent waters caused by recreational land uses. The problems that do exist are localized and are related to specific types of activities--i.e., dirt bikes, snowmobiling, hiking. These problems do not occur throughout the year.

In Wisconsin, the control of pollution that results from recreational activities falls under the more generalized controls given to local units of government. There are zoning powers, shoreland and flood plain zoning, building inspection programs, and conservation programs of the Soil and Water Conservation Districts. No recreation land use activities are creating water quality problems.

LAKESHORE AND RIVERBANK EROSION

The Federal government has several programs which can control erosion from lakeshores and riverbanks. The Soil and Water Conservation Program administered by the Soil Conservation Service provides assistance to individuals and local units of government for reducing lakeshore or riverbank erosion from different types of activities.

The Flood Insurance Program administered through the Corps of Engineers and the Department of Housing and Urban Development requires state and local governments to develop laws restricting land uses in flood plains The Flood Control Act authorizes funds for the construction of facilities to control floods. To receive these funds, jurisdictions must have passed laws restricting land use in flood plains. To assist in the implementation

of flood control projects, the Corps of Engineers maintains prime responsibility and provides educational and technical assistance services to local jurisdictions on how to control and prevent floods.

The Coastal Zone Management Act establishes the Coastal Zone Management Program, which requires each state to develop land use control programs along their coastlines. The implementation of the plans developed by the states, beginning in 1978, should result in a more uniform control of lakeshore erosion than currently exists. Currently, Indiana, New York, Ohio and Pennsylvania have no specific statewide control over the development of the lakeshore. These controls are left to the local jurisdictions through their planning, zoning, and subdivision control powers. The states of Michigan, Minnesota and Wisconsin all have Shoreland and Flood Plain Zoning Programs which require local jurisdictions to develop zoning programs which meet state standards and are approved by the states. These zoning programs control development activities in the shoreland and flood plain areas and are a model for the Coastal Zone Management Programs.

The Illinois Coastal Zone Management Program has completed a detailed study of shoreland erosion problems in Illinois. From this study, legislation was drafted (Illinois Coastal Zone Management Act) that would establish a partnership between state and local governments to control construction and land modification activities and thus reduct erosion along the shoreline of Lake Michigan. This Act is currently before the Illinois General Assembly.

There are two pieces of legislation in Indiana that provide authority to regulate lakeshore and riverbank erosion. They are the Flood Plain Management Act, and the Flood Control Act, as amended. Under the Flood Plain Management Act, the Department of Natural Resources has the authority to assist local governmental units in identifying and delineating flood hazard areas and to prepare a statewide Flood Plain Management Program. The Act gives local governmental units the authority to pass flood plain management ordinances.

Under the Flood Control Act, the Natural Resources Commission has the authority to adopt rules and regulations with regard to alteration of a natural or present water courses. Any person engaging in erecting or maintaning a floodway as a permanent resident must have a permit which is issued by the NRC.

In Michigan the responsibility for controlling lakeshore and riverbank erosion is divided between state and local governments. Authorities are derived from the Natural Rivers Act, local zoning and subdivision controls, Inland Lakes and Stream Act, the Shoreland Protection and Management Act, and the Soil Erosion and Sedimentation Control Act.

In Minnesota, the responsibility for regulating lakeshore and riverbank erosion is divided between the Department of Natural Resources, municipalities, and counties. Under the Shoreland Management Act, the Department of

Natural Resources (DNR) is responsible for promulgating standards and criteria regarding land use, subdivision, and development of shoreland areas. Local governments are required to adopt zoning ordinances consistent with the standards.

In New York, the Department of Environmental Conservation has the ability to control lakeshore and riverbank erosion through its work in flood hazard areas. However, the Department is primarily concerned with flood control work and any impact on water quality is indirect. The passage of a sediment control act should impact lakeshore and riverbank erosion. This category is also tied to the control of runoff and the adequate control of land use through zoning and subdivision authority.

In Ohio, erosion from the natural actions of a lake or river, and how to control it, has not yet been determined. This includes identification of the relationships between various different land use activities and their indirect impact on lakes and streams. Without such a determination, controls cannot be developed. The Contractor was unable to identify any specific controls for lakeshore or riverbank erosion in the state.

In Pennsylvania, the Clean Streams Act does give the state authority to control all activities in the vicinity of a stream so that specific permits must be obtained prior to any of man's earth moving activities that would impact on a stream or the lakeshore.

In Wisconsin, the erosion program for inland lakes is part of a general sedimentation control program for the lake. There is no differentiation made between lakeshore erosion and the erosion caused from land use activities within a lake district. This makes it virtually impossible to evaluate how effective the Public Inland Lake Protection and Rehabilitation Program is in controlling lakeshore erosion. The Contractor was unable to identify any controls for riverbank erosion in the state. The Shoreland and Flood Plain Zoning Act controls activities along the lakeshore so that erosion should be controlled.

FORESTED AREAS

State and local governments are responsible for management of their respective forested areas. Under the Water Quality Management Planning Program, state and local governments are required to identify water quality problems arising from silvicultural activities and develop controls to reduce water quality impacts resulting from these activities, i.e. cost share and tax incentive programs for woodlot owners. The Forest Service is conducting Water Quality Management Planning studies for National Forest lands. The Forest Service is also providing state and local units with technical assistance and training programs.

The National Forest Act controls the use, occupation, and cutting of timber in national forests. The U.S. Forest Service regulates these activities. Regulation is based on the concept of multiple use.

Grazing on federal lands is also controlled and is based on the concept of the highest use of the land as well as the multiple use concept and water quality is a minimal consideration. To graze livestock on federal lands, a permit is required which usually runs for 10 years. The permit identifies the locations, the seasons of use, and the land capacity for the grazing to be carried out.

The study did not address forest area activities for the state of Illinois.

In Indiana, the Department of Natural Resources has the responsibility of regulating forestry activities in the state. The Department is currently completing erosion studies to determine critical sediment loss from different forest practices. The focus of the Department's work has historically been on production rather than conservation of water quality. Most of the timber production occurs in southern Indiana.

According to state officials in Michigan, increases in the amount of timber cutting will not lead to serious increases in sedimentation. Michigan's forests are, in the first place, usually well-suited for logging operations. Their soils are generally not highly erodible. Furthermore, the size of individual clearcuts will probably decrease and be more carefully tailored to the landscape so that harvesting on state forests and, to a lesser degree, on private lands will be similar to federal guidelines, which call for a maximum of 25 acre cuts on national forests.

The greatest potential for sedimentation in Michigan comes from haul roads (especially at stream corssings) and skid trails. Although the harvest area itself is exempt from the provisions of the Soil Erosion and Sedimentation Act, haul roads to and from the area are subject to this law. The application of permit requirements of the Act is expected to provide better controls over the construction and maintenance of roads.

In Minnesota, forestry activities are regulated by the DNR. The Department is responsible for operating a forest products utilization and marketing program. It provides technical assistance and services to improve the utilization and marketing of Minnesota's forest resources.

Forestry activities in New York are jointly regulated by the Department of Environmental Conservation and local units of government. The Department sets timber cutting standards for good forestry practices which apply to private and public land. These standards look at forest areas as multiple use areas and they consider water quality. Woodland owners are not required to follow these practices. The Department also provides technical assistance to woodland owners developing management plans.

Local governments have the authority to adopt ordinances controlling timber cutting. Few ordinances have been adopted. Those that do exist are designed to control growth in newly developing areas by requiring permits for removing trees that exceed a designated trunk size.

In Ohio, the Department of Natural Resources is the lead agency in regulating forestry activities. The Department establishes guidelines for good forestry practices and operates a tax incentive program which provides woodland owners who agree to operate and maintain their property according to certain standards a 50% tax reduction. The owners are required to submit a management plan for approval to the Forest Service. The program is voluntary.

In Pennsylvania, the Department of Environmental Conservation regulates the State's forestry activities. The Department establishes guidelines for timber cutting and designates areas for special uses such as natural areas, parks, picnic areas and administrative areas. These areas are not to be managed for timber products. All the timber that is to be sold is marked or designated in accordance with approved silvicultural practices by the local Forestry Service. The Forester is also responsible for making sure specifications for haul roads, skid roads and drainage structures are completed before the sale operations begin.

The Department also participates in cost sharing programs with woodland owners. Professional guidance is available from the District Forester for a range of forestry activities: salvage cutting, crop tree selection, harvest and regeneration betterment, and timber stand improvements. The Bureau of Forestry also conducts training classes in lumber, log and tree grading.

In Wisconsin no controls of wildlife management or woodland grazing on State or county lands have been identified from a water quality standpoint. Timber production in public forests is controlled by a set of regulations which require that a permit be obtained prior to cutting. To obtain the permit, a plan must be submitted that reflects the work proposed to be done and limits any clear cutting to a maximum of 50 acres.

APPENDIX A

ALTERNATIVE PROVISIONS

For Use With The

MODEL STATE ACT FOR SOIL EROSION AND SEDIMENT CONTROL

During the course of seminars conducted by the National Association of Conservation Districts in over forty states for the purpose of examining the provisions of the Model Act for Soil Erosion and Sediment Control, it became apparent that some alternative wording might better meet the needs of some states. Such alternative language has been developed by NACD with respect to those provisions of the Model Act which had presented questions of interpretation at these meetings. The alternative language does not change the basic intent of the Model Act provisions, but is suggested with the hope that it will clarify their intent, as well as help meet needs which may arise in relation to Section 208 Water Quality Management under P. L. 92-500.

MODEL STATE ACT FOR SOIL EROSION AND SEDIMENT CONTROL

ALTERNATIVE LANGUAGE FOR STATE LEGISLATION TO CONTROL EROSION, SEDIMENT, AND RELATED POLLUTION AND TO IMPROVE WATER QUALITY

(Modifications are indicated by new language in this column and by underlining and strikeouts in text of Model Act.)

Suggested Legislation

An Act to amend the [soil and water conservation districts law] to provide for an acceleration and extension of the program for control of soil erosion and sediment damage resulting from land-disturbing activities within the State; ~~to provide for adoption of a comprehensive statewide soil erosion and sediment control program and guidelines and for adoption by [soil and water conservation districts] of soil erosion and sediment control~~ programs consistent with such statewide program and guidelines; to require the filing and approval of plans for the control of soil erosion and sediment damage in connection with land-disturbing activities; to provide for inspections and reports; to declare certain acts to be unlawful; to provide for administration and enforcement; to provide for financial and other assistance to districts and the [state soil and water conservation commission] for the purposes of this Act, and making an appropriation for those purposes; and for other purposes.

Be It Enacted by the Legislature of the State of [ ] that the [soil and water conservation districts law] shall be amended by adding at the end thereof the following sections:

Section 1. [*Findings and Declaration of Policy.*] The Legislature finds that erosion continues to be a serious problem throughout the State, and that rapid shifts in land use from agricultural and rural to nonagricultural and urbanizing uses, changes in farm and ranch enterprises, operations, and ownership, construction of housing, industrial and commercial developments, streets, highways, recreation areas, schools and universities, public utilities and facilities, and other land-disturbing activities have /accelerated the process of soil erosion and sediment deposition resulting in pollution of the waters of the State and damage to domestic, agricultural, industrial, recreational, fish and wildlife, and other resource uses. It is, therefore, declared to be the policy of this Act to strengthen and extend the present erosion and sediment control activities and programs of this State for both rural and urban lands, /and to establish and implement, through the [state soil and water conservation commission], hereinafter referred to as

to provide for the improvement of water quality; to provide for adoption of a comprehensive statewide program and guidelines for the control of soil erosion, sediment, and sediment related pollutants, and for adoption by [soil and water conservation districts] of

caused excessive water runoff and

to improve water quality,

the "Commission," and the [soil and water conservation districts], hereinafter referred to as "districts," in cooperation with counties, municipalities, and other local governments and subdivisions of this State, and other public and private entities, a statewide comprehensive and coordinated erosion and sediment control program /to conserve and protect land, water, air, and other resources of the State.

to reduce damage from stormwater runoff, to retard nonpoint pollution from sediment and related pollutants, and

Section 2. [*Definitions.*]

(a) "Land-disturbing acitivity" means any land change which may result in soil erosion from water or wind and the movement of sediments into state waters or onto lands in the State, including, but not limited to, tilling, clearing, grading, excavating, transporting, and filling of land, other than federal lands, except that the term shall not include such minor land-disturbing activities as home gardens and individual home landscaping, repairs, and maintenance work.

and sediment related pollutants

(b) "Person" means any individual, partnership, firm, association, joint venture, public or private corporation, trust, estate, commission, board, public or private institution, utility, cooperative, municipality, or other political subdivision of this State, any interstate body, or any other legal entity.

(c) "State waters" means any and all waters, public or private, on the surface of the ground, which are contained within, flow through, or border upon the State of [ ] or any portion thereof.

(d) "Erosion and sediment control plan" or "plan" means a plan for the control of soil erosion, and sediment /resulting from a land-disturbing activity/, and sediment related pollutants, stormwater runoff, or accelerated erosion not related to a new land disturbing activity.

(e) "Conservation standards" or "standards" means standards adopted by the Commission or the districts pursuant to Sections 3 and 4, respectively, of this Act.

(f) "Soil erosion" means the wearing away of land by the action of wind, water, ice, gravity or a combination thereof

(g) "Sediment" means solid particulate matter, mineral or organic, that has been deposited in water, is in suspension in water, is being transported, or has been removed from its site of origin by the processes of soil erosion and stormwater runoff.

(h) "Sediment related pollutants" means substances such as nutrients, pesticides, pathogens, and organic materials whic are transmitted with or in association with sediment. It al means salts in irrigation return flows and animal wastes.

(i) "Enduring practices" means those conservation practices which have a useful life of at least ten years and which have substantial public benefits.

Section 3. [*State Erosion and Sediment Control Program.*]

(a) The Commission shall, in cooperation with the [state water quality control agency] and other appropriate state and federal agencies, develop and coordinate a comprehensive state erosion and sediment control program/ To assist in the development of such a program, the Commission shall name an advisory board of not less than 7 nor more than 11 members, representing such interests as housing, financing, industry, agriculture, recreation, and local governments, and their planning, transportation, health, public works, and zoning commissions or agencies. ----------to carry out the policy stated in section one.

(b) To implement this program, the Commission shall develop and adopt by [(date)] guidelines ~~for erosion and sediment control~~, which ~~guidelines~~ may be revised from time to time as may be necessary. Before adopting or revising guidelines the Commission shall, after giving due notice,[1] conduct public hearings on the proposed guidelines or proposed change in existing guidelines. The guidelines for carrying out the program shall:

(1) be based upon relevant physical and developmental information concerning the watersheds and drainage basins of the State, including, but not limited to, data relating to land use, soils, hydrology, geology, size of land area being disturbed, proximate water bodies and their characteristics, transportation, and public facilities and services;

(2) include such survey of lands and waters as may be deemed appropriate by the Commission or required by any applicable law to identify areas, including multijurisdictional and watershed areas, with critical erosion and sediment problems; and

(3) contain conservation standards for various types of soils and land uses, which standards shall include criteria, techniques, and methods for the control of erosion, ~~and~~ sediment /~~resulting from land disturbing activities.~~ ---------- , and sediment related pollutants.

(c) The program and guidelines shall be made available for public inspection at the office of the Commission.

Section 4. [*District Erosion and Sediment Control Program.*]

(a) Each district in the State shall, within [ ] year(s) after the adoption of the state guidelines, develop and adopt a soil erosion and sediment control program consistent with the state program and guidelines ~~for erosion and sediment control~~. To assist in developing its program, each district shall name an advisory committee of not less than 7 nor more than 11 members representing such interests as housing, financing, industry, agriculture, recreation, and local governments, and their planning, transportation, health, public works, and zoning

[1]Districts laws generally contain a definition of "due notice." If the law does not contain such a definition, one should be included in Section 2 of this Act.

commissions or agencies. Upon the request of a district the Commission shall assist in the preparation of the district's program. Upon adoption of its program, the district shall submit the program to the Commission for review and approval. If a district fails to submit a program to the Commission within the period specified herein, the Commission shall, after such hearings or consultations as it deems appropriate with the various local interests in the district, develop and adopt an appropriate program to be carried out by the district. In areas where there is no district, the Commission shall designate a local unit of general government such as a county, municipality, town, parish, borough, or township to develop, adopt, and carry out the erosion and sediment control program and exercise the responsibilities of a district with respect thereto, as provided in this Act.

(b) To carry out its program the district shall, within [ ] year(s) after the program has been approved by the Commission, establish, consistent with the state program and guidelines, conservation standards for various types of soils and land uses, which standards shall include criteria, guidelines, techniques, and methods for the control of erosion, ~~and~~ sediment ~~resulting from land-disturbing activities~~, and sediment related pollutants. Such conservation standards may be revised from time to time as may be necessary. Before adopting or revising conservation standards, the district shall, after giving due notice, conduct a public hearing on the proposed conservation standards or proposed changes in existing standards.

(c) The program and conservation standards shall be made available for public inspection at the principal office of the district.

Section 5. [*Prohibited Land-Disturbing Activities.*]

(a) ~~Except as provided in subsection (e) of this section,~~ No person may engage in any land-disturbing activity until he has submitted to the district a plan for erosion and sediment control for such land-disturbing activity and such plan has been reviewed and approved by the district, except that (1) when proposed land-disturbing activities are to be performed on state lands or by or on behalf of a state agency, plans for erosion and sediment control shall be submitted to the Commission instead of the district for review and approval, and (2) where land-disturbing activities involve lands in more than one district, plans for erosion and sediment control may, as an alternative to submission to each district concerned, be submitted to the Commission for review and approval.

(b) Upon submission of a ~~an erosion and sediment control~~ plan to a district or to the Commission:

(1) the districts shall review plans submitted to it and shall approve any such plan if it determines that the plan meets the conservation standards of the district, and if the person responsible for carrying out the plan certifies that he will properly perform the ~~erosion and sediment control~~ measures included in the plan and will conform to the provisions of this Act;

(2) the Commission shall review plans submitted to it and shall approve any such plan if it determines that the plan is adequate in consideration of the Commission's guidelines and the conservation standards of the district or districts involved, and if the person responsible for carrying out the plan certifies that he will properly perform the conservation measures included in the plan and will conform to the provisions of this Act.

(c) When a plan submitted for approval under this section is found, upon review by a district or the Commission, to be inadequate, the district or the Commission, as the case may be, may require such modifications, terms, and conditions as will permit approval of the plan.

(d) An approved plan may be changed by the district which has approved the plan or by the Commission when it has approved the plan, where:

(1) inspection has revealed the inadequacy of the plan to accomplish the ~~erosion and sediment control~~ objectives of the plan, and appropriate modifications to correct the deficiencies of the plan are agreed to by the plan-approving authority and the person responsible for carrying out the plan; or

(2) the person responsible for carrying out the approved plan finds that because of changed circumstances or for other reasons the approved plan cannot be effectively carried out, and proposed amendments to the plan, consistent with the requirements of this Act, are agreed to by the plan-approving authority and the person responsible for carrying out the plan.

~~(e) Any person owning, occupying, or operating private agricultural and forest lands who has a farm or ranch conservation plan approved by the district and is implementing and maintaining such plan with respect to normal agricultural and forestry activities, or any person whose normal agricultural and forestry practices are in conformance with the conservation standards established pursuant to this Act, shall not be deemed to be engaged in prohibited land disturbing activity, if there is not available to any such owner, operator, or occupier at least 50 percent cost sharing assistance or adequate technical assistance for the installation of erosion and sediment control measures required in an approved farm or ranch plan, or for measures to conform agricultural and forestry practices to conservation standards established pursuant to this Act, any such owner, occupier, or operator who shall fail to install erosion and sediment control measures required in an approved farm or ranch conservation plan, or to conform his~~

This subsection deleted here and incorporated in renumbered section 6.

Reproduced from best available copy.

agricultural and forestry practices to such conservation standards, shall not be deemed to be engaged in prohibited land disturbing activity subject to penalties under the Act.

Section 6. [*Approved Plan Required for Issuance of Grading, Building, or Other Permits.*] No agency authorized under any other law to issue grading, building, or other permits for activities involving land disturbing activities may issue any such permits unless the applicant therefor submits with his application an erosion and sediment control plan approved by the district, or by the Commission where appropriate, and his certification that such plan will be followed. These requirements are in addition to all other provisions of law relating to the issuance of such permits and are not intended to otherwise affect the requirements for such permits.

Reproduced from best available copy.

This section is deleted and its substance incorporated in the next section.

Section 2/[*Monitoring, Reports, and Inspections.*] 6. [Compliance Requirements - Monitoring, Reports, and Inspections.]

(a) Land disturbing activities involving agricultural or silvicultural activities. Any person owning, occupying, or operating private agricultural and silvicultural lands who has a farm or ranch conservation plan approved by the district and is implementing and maintaining such plan with respect to normal agricultural and silvicultural activities, or any person whose normal agricultural and silvicultural practices are in conformance with the conservation standards established pursuant to this Act, shall be deemed to be in compliance with the requirements of the act for an approved erosion and sediment control plan. If there is not available to any such owner, operator, or occupier at least 50 percent cost-sharing assistance or technical assistance for the installation of enduring measure which are required in an approved farm or ranch conservation plan, or for measures to conform agricultural and silvicultural practices to conservation standards established pursuant to this Act, any such owner, occupier, or operator who shall fail to install such measures shall not be deemed to be in violation of the Act and subject to penalties under this Act. In connection with such agriclutural or silvicultural operations, the district, or the commission where appropriate, may, upon its own motion or upon receipt of a complaint, make such on site inspections as are deemed necessary to determine whether the operations are being carried out in accordance with the conservation plan or with the conservation standards established pursuant to this Act.

On site inspections may be made after notice to the resident owner, operator, or occupier of the land involved, and such person shall be given an opportunity to accompany the inspector. If such inspections reveal that an owner, operator, or occupier of agricultural or silvicultural lands is not complying with the approved farm or ranch conservation plan or is not carrying out his agricultural and silvicultural practices in conformance with conservation standards established pursuant to this Act, such owner, operator, or occupier shall be notified by registered mail addressed to him at his usual abode or customary place of business of the measures needed for compliance. Such notice shall require that such resident owner, occupier, or operator shall commence such measures within 6 months from the date of the notice and shall complete the same within 12 months of such date. Upon failure to comply with such notice, the owner, occupier, or operator will be deemed in violation of this Act and subject to the penalties provided by this Act.

----------(b)

(a) *Land-disturbing activities where permit is issued.* With----------a
respect to approved plans for erosion and sediment control in connection with land-disturbing activities which involve the issuance of a----------required.
grading, building, or other permit, the permit-issuing authority shall----------under other laws,
provide for periodic inspections of the land-disturbing activity to insure compliance with the approved plan, and to determine whether the measures required in the plan are effective in controlling erosion and sediment resulting from the land-disturbing activities. Notice of such right of inspection shall be included in the permit. If the permit-issuing authority determines that the permittee has failed to comply with the plan, the authority shall immediately serve upon the permittee by registered mail to the address specified by the permittee in his permit application a notice to comply. Such notice shall set forth the measures needed to come into compliance with such plan and shall specify the time within which such measures shall be completed. If the permittee fails to comply within the time specified, he shall be deemed to be in violation of this Act and upon conviction shall be subject to the penalties provided by the Act.----------require that all erosion and sediment contorl plans approved by the district be submitted with the permit application. Such authority shall also

Reproduced from best available copy.

(b) *Other land-disturbing activities, except agricultural and forestry operations.* With respect to approved plans for erosion and sediment control in connection with all other land-disturbing activities, ~~except agricultural and farming operations,~~ the district, or the Commission in connection with plans approved by it, may require of the person responsible for carrying out the plan such monitoring and reports, and may make such on-site inspections after notice to the resident owner, occupier, or operator, as are deemed necessary to determine whether the soil erosion and sediment control measures required by the approved plan are being properly performed, and whether such measures are effective in controlling soil erosion and sediment resulting from the land-disturbing activity. Such resident owner, occupier, or operator shall be given an opportunity to accompany the inspectors. If it is determined that there is failure to comply with the approved plan, the district, or the Commission where appropriate, shall serve upon the person who is responsible for carrying out the approved plan a notice to comply, setting forth the measures needed to be taken and specifying the time in which such measures shall be completed. Such notice shall be by registered mail to the person responsible for carrying out the plan at the address specified by him in his certification at the time of obtaining his approved plan. Upon failure of such person to comply within the specified period, he will be deemed to be in violation of the Act and subject to the penalties provided by the Act.

(c) ~~*Agricultural and forestry operations.* With respect to agricultural and forestry operations, the district shall have authority to make on-site inspections to determine if the approved farm or ranch conservation plan is being followed, or, where there is no such plan, to determine if the agricultural and forestry practices are being carried out in conformance with conservation standards established pursuant to this Act. On-site inspections may be made after notice to the resident owner, operator, or occupier of the land involved, and such person shall be given an opportunity to accompany the inspector. If such inspections reveal that an owner, operator, or occupier of agricultural or forestry lands is not complying with the approved farm or ranch conservation plan or is not carrying out his agricultural and forestry practices in conformance with conservation standards established pursuant to this Act, such owner, operator, or occupier shall be notified by registered mail addressed to him at his usual abode or customary place of business of the measures needed for compliance. Such notice shall require that such resident owner, occupier, or operator shall commence such measures within 6 months from the date of the notice and shall complete the same within 12 months of such date. Upon failure to comply with such notice, the owner, occupier, or operator will be deemed in violation of this Act and subject to the penalties provided by the Act.~~

, upon its own initiative or upon receipt of a complaint,

Reproduced from best available copy.

This subsection has been incorporated into subsection (a)

Section 8/ [*Cooperation with Federal Agencies.*] The district and the Commission are authorized to cooperate and enter into agreements with any federal/agency in connection with plans for erosion and sediment control with respect to land-disturbing activities on lands which are under the jurisdiction of such federal agency.

Section 8. [Ordinances by Local Governmental Units,] Local governmental units, such as counties and municipalities may, under authority of this Act or other authority, enact ordinances requiring local programs consistent with, and not less strict than, the requirements of this Act and the guidelines and standards promulgated pursuant thereto.

Section 9. [*Financial and Other Assistance.*] /The Commission and the districts are authorized to receive from federal, state, or other public or private sources financial, technical, or other assistance for use in accomplishing the purposes of this Act.

(b) The Commission is authorized to make grants of funds to districts to carry out the purposes of this Act, including, but not limited to, cost sharing assistance for enduring measures.

Section 10 [Complaints) Any person claiming damage because of sediment or sediment related pollutants from an eroding area or from any land-disturbing activity may file a written complaint with the permit-issuing authority in connection with an activity where a permit is issued, with the Commission in connection with plans approved of it, or with the appropirate district. Upon receipt of such complaint, appropriate action shall be taken in accordance with the provisions of Section 6. The filing of a complaint shall not preclude the complainant from pursuing any other remedy available to him under this or other laws.

Section ~~10~~ 11. [*Appeals.*] Decisions of the districts, the Commission, and the permit-issuing authorities under the provisions of this Act shall be subject to review by the [ ] court; *provided,* that an appeal is filed within 30 days from the date of any such decision.

Section ~~11~~ 12. [*Penalties, Injunctions and Other Legal Actions.*]

(a) A violation under Section 5 or ~~7~~ 6 of this Act shall be deemed a misdemeanor and upon conviction shall be subject to a fine not to exceed $500 or one year's imprisonment for each and every violation. Each day the violation continues shall constitute a separate offense.

(b) The appropriate permit-issuing authority, the district, the Commission, or any aggrieved person who suffers damage or is likely to suffer damage because of a violation may apply to the [ ] court for injunctive relief to enjoin a violation or threatened violation under Section 5 or ~~7~~ 6 of this Act.

(c) The [county attorney] shall, upon request of a district or the permit-issuing authority, take legal action to enforce the provisions of this Act. The State Attorney General shall, upon request of the Commission, take appropriate legal action on behalf of the Commission to enforce the provisions of this Act.